

3 1761 05234771 3





Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

New York State Education Department

New York State Museum

JOHN M. CLARKE, Director

Memoir 12

BIRDS OF NEW YORK

BY

ELON HOWARD EATON

Part 1

INTRODUCTORY CHAPTERS; WATER BIRDS AND GAME BIRDS

	PAGE		PAGE
Preface - - - - -	5	Bird migration - - - - -	65
Illustrator's note - - - - -	9	Spring arrivals - - - - -	72
Summary of the New York State		Published local lists - - - - -	75
avifauna - - - - -	11	County schedules - - - - -	80
Life zones of New York State -	19	Classification - - - - -	88
The Mt Marcy region - - - - -	42	Descriptions of genera and species -	91
Increase and decrease of species -	50	Explanation of plates - - - - -	391
Suggestions to bird students - -	58	Index - - - - -	475

ALBANY

UNIVERSITY OF THE STATE OF NEW YORK
1910

105017
20/9/10.

STATE OF NEW YORK
EDUCATION DEPARTMENT

Regents of the University

With years when terms expire

1913	WHITELAW REID M.A. LL.D. D.C.L. <i>Chancellor</i>	-	New York
1917	ST CLAIR MCKELWAY M.A. LL.D. <i>Vice Chancellor</i>	-	Brooklyn
1919	DANIEL BEACH Ph.D. LL.D. - - - -	-	Watkins
1914	PLINY T. SEXTON LL.B. LL.D. - - - -	-	Palmyra
1912	T. GUILFORD SMITH M.A. C.E. LL.D. - - - -	-	Buffalo
1918	WILLIAM NOTTINGHAM M.A. Ph.D. LL.D. - - - -	-	Syracuse
1910	CHESTER S. LORD M.A. LL.D. - - - -	-	New York
1915	ALBERT VANDER VEER M.D. M.A. Ph.D. LL.D. - - - -	-	Albany
1911	EDWARD LAUTERBACH M.A. LL.D. - - - -	-	New York
1920	EUGENE A. PHILBIN LL.B. LL.D. - - - -	-	New York
1916	LUCIAN L. SHEDDEN LL.B. LL.D. - - - -	-	Plattsburg
1921	FRANCIS M. CARPENTER - - - -	-	Mount Kisco

Commissioner of Education

ANDREW S. DRAPER LL.B. LL.D.

Assistant Commissioners

AUGUSTUS S. DOWNING M.A. Pd.D. LL.D. *First Assistant*

FRANK ROLLINS Ph.D. *Second Assistant*

THOMAS E. FINEGAN M.A. Pd.D. *Third Assistant*

Director of State Library

JAMES I. WYER, JR, M.L.S.

Director of Science and State Museum

JOHN M. CLARKE Ph.D. D.Sc. LL.D.

Chiefs of Divisions

Administration, HARLAN H. HORNER B.A.

Attendance, JAMES D. SULLIVAN

Educational Extension, WILLIAM R. EASTMAN M.A. M.L.S.

Examinations, CHARLES F. WHEELOCK B.S. LL.D.

Inspections, FRANK H. WOOD M.A.

Law, FRANK B. GILBERT B.A.

School Libraries, CHARLES E. FITCH L.H.D.

Statistics, HIRAM C. CASE

Trades Schools, ARTHUR D. DEAN B.S.

Visual Instruction, ALFRED W. ABRAMS Ph.B.

New York State Education Department
Science Division, April 1, 1908

Hon. Andrew S. Draper LL.D.

Commissioner of Education

SIR: In 1844 this State published as one of the volumes of the *Natural History of New York* a comprehensive and finely illustrated treatise on the birds of the State prepared by the eminent ornithologist, James E. DeKay. Ever since its date of issue this work has been of fundamental value to all students of birds and may justly be regarded as, in a large degree, the primary inspiration of the present widespread interest among the people of the State in the science of ornithology.

In 1904, 60 years from its publication, I urgently represented to you that a restudy of this field was desirable in order to bring together the increments to knowledge during the long period which had elapsed without active interest therein on the part of the State, and to meet the very general and lively concern in the subject among our citizens.

Consequent upon your cordial approbation of this plan, Mr E. Howard Eaton, an experienced student of the birds, was asked to undertake the preparation of a work which would meet the present needs of the public.

It is with much satisfaction that I now have the honor to transmit to you herewith for publication as a memoir of the State Museum, the manuscript of the first volume of this treatise, accompanied by the plates in color which have been prepared by the accomplished bird artist, Mr Louis Agassiz Fuertes.

Very respectfully

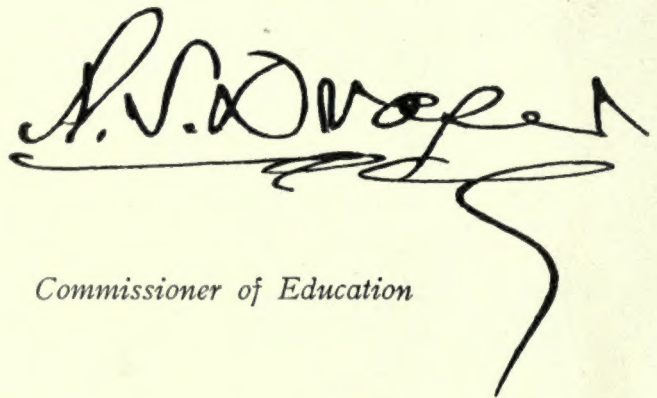
JOHN M. CLARKE

Director

State of New York
Education Department
COMMISSIONER'S ROOM

April 8, 1908

The economic value of birds, the aid which they bring to common culture, and the stimulus which they give to moral sense, constitute ample warrant for supplying accurate and scientific information about birds and bird life, at the expense of the State. Our State has already done something to this end, and what it did was well done, for it devoted one of the sumptuous volumes of the Natural History of New York to the subject. But that was before most people now living were born. It is said, no doubt with truth, that that work has been the main reliance of serious students of ornithology and the main inspiration of substantial popular interest in birds, not only in New York but beyond our borders, for more than sixty years. Certainly, popular interest in the subject has both widened and deepened. The present needs were brought officially to my attention by Dr John M. Clarke, the Director of the Science Division of this Department, very soon after the organization of the present Department, and he was authorized to go forward with the preparation of a work that would meet these needs, with the assurance that it would be published by the State if it proved to be widely comprehensive of the subject, was given a form which would appeal to popular interest, and was marked by scientific accuracy for which he would vouch. Even so much as this appears to have been realized, and publication is approved.

A large, stylized handwritten signature in black ink, appearing to read 'A. V. Wagner'. The signature is written in a cursive, flowing style with a long, sweeping underline that extends to the right.

Commissioner of Education

New York State Education Department

New York State Museum

JOHN M. CLARKE, Director

Memoir 12

BIRDS OF NEW YORK

BY

ELON HOWARD EATON

PART I

PREFACE

During the past half century there has been a remarkable advance in all departments of ornithology. Detailed study of the structure, classification, migration and distribution of birds has virtually revolutionized the science. The popular awakening of interest in nature study and the increased appreciation of the out-of-doors among all classes of society, has largely centered in bird study as one of the most delightful and fascinating recreations. The vast army of American sportsmen is becoming aroused to the necessity of protecting our game and wild birds more efficiently, lest they all go the way of the Heath hen and Wild pigeon. The Audubon societies are making an heroic defense of our song birds and vanishing sea fowl. National and state governments and individual biological researches have proved the inestimable value of birds to agriculture. Many American states have established special commissions for the study of economic ornithology and have published extensive reports on native birds and their value to the commonwealth.

On account of the rapidly changing natural conditions in this country due to settlement and cultivation, and because of the wanton and thoughtless destruction of forests and wild life which has characterized the last century, there is most urgent need of public sentiment asserting itself in the protection and encouragement of our wild birds, if this State is to preserve the remnant of its heritage of game birds whose abundance astounded the early explorers, and if we are to keep the song birds which lend such a charm to country life and insure the farmer against the outbreak of insect pests which constitute the most serious menace to the agricultural wealth of the State.

During the 64 years which have elapsed since DeKay's account of New York ornithology was published, 100 species of birds have been added to our State list and material advancement has been made in our knowledge of the habits and distribution of the commoner species. The present report has been prepared with the double purpose of bringing together as completely as possible our knowledge of New York birds at the present time; by affording the intelligent public an account of every species known to occur within the State, accompanied with the illustrations so successfully executed by Mr Fuertes, it is hoped that the rising generation will become sufficiently acquainted with the beauty, interest and value of our birds to appreciate and protect them more efficiently.

For assistance in preparing this report the author is indebted to all students of New York birds who are mentioned in the introduction to the summary of the published and county lists; to Dr Clarke, Director of the State Museum, at whose suggestion the work was begun, and to his corps of assistants who have helped in the study of the State's specimens and records; to the authorities of the United States National Museum in Washington, especially Professor Ridgway, Dr Richmond and Mr Riley who have furnished free access to the specimens in the Smithsonian collections of birds and eggs; to the authorities of the Biological Survey, United States Department of Agriculture, who have placed their extensive collection of records and specimens at his disposal, especially to Dr Merriam,

Chief of the Survey, and to Dr Fisher, Professor Cooke, Mr Oberholser and Mr Howell, all of whom have worked in New York territory and have rendered generous assistance; to the officers of the American Museum of Natural History in New York city, specially to Dr Allen, Mr Chapman and Mr Miller, for the use of their records and specimens; to Dr Jonathan Dwight for comparison of specimens with his complete series of subspecies of eastern birds; and to Mr Dutcher for the use of his Long Island collection and exhaustive notes on Long Island birds.

ELON HOWARD EATON

Canandaigua, N. Y., March 25, 1908

ILLUSTRATOR'S NOTE

In illustrating a work of the importance and scope of the present one it has been necessary to draw upon larger material than was available in my own cabinets, so recourse was had to the more complete collections of others. The majority of the land birds and smaller water birds have been drawn from specimens of my own collecting, while most of the larger species were kindly loaned by different institutions; the New York State Museum at Albany, the American Museum of Natural History in New York, and the Department of Zoology of Cornell University.

The living appearance of a bird is seldom well expressed by a dried skin, however perfect it may be, and in many instances a specimen gives no hint of the grace and beauty furnished in life by the bright colors of the perishable parts: the eyes, the soft skin of bill and feet of many water birds, and, in rare cases, the living feathers themselves. For there are some birds, notably the group of Black-headed gulls, some terns, and the larger mergansers, whose white plumage is suffused at certain seasons with a most beautiful tinge of shell-pink or rosy cream-color which is evanescent, and soon fades from the most carefully prepared and cherished skin. The rich colors often found in the bill, legs and feet also change with the process of drying, and it is a cause of surprise and regret to students to find how meager is the literature bearing upon this important item of bird coloration. It is almost impossible to find concise descriptions of even the more striking of these transitory beauties, while those less brilliant but not less beautiful and interesting are generally allowed to pass entirely undescribed. Thus it early became apparent to me that if such data were to be recorded it must be done from actual specimens, painted, in short, from living or fresh taken birds, before the settling of the body fluids or the disintegration or absorption of pigments could take place. This, it may be said, is frequently a matter of only an instant, and in most cases, also, the high color is only attained in adult birds and at the approach of the breeding season.

Thus it has come to be the most important part of my field work for the past 10 years to make careful color notes of all these changeable parts, at the first possible moment after the capture of the bird, and I have endeavored to miss no opportunity to add to my collection. As a result I now have a large series of such studies, fairly covering the field, which has been freely drawn upon in this work, and without which many of the subjects could not possibly have been rendered even slight justice. And it is still possible that some of the species are incorrectly represented, owing to the impossibility of getting fresh specimens or adequate descriptions of the rarer ones. In these few cases reference has been made to such descriptions as were available and to the original edition of Audubon—an expedient not without precedent among authors of the present day.

Owing to the large number of species and plumages necessary to present, it was found impossible to devote an entire plate to each species as was the first hope of all connected with the work. This accounts for the regrettable combining of several species on a plate, at times introducing anomalous conditions, and bringing birds together that seldom see each other. We have tried hard to reduce such cases to a minimum, and it should be understood that where these occur there was no better solution apparent. Among the water birds, presented in volume 1, the groups are for the most part not unnatural, though frequently crowded, but among the land birds in the second volume it was necessary to frankly face the situation, do the best we could, and make this explanation.

LOUIS AGASSIZ FUERTES

Ithaca, N. Y.

SUMMARY OF THE NEW YORK STATE AVIFAUNA

At the present time there are 411 species of birds which have been recorded as occurring in New York State. Sixty-four years ago, when DeKay's *Ornithology of New York* appeared, 301 species were known. By referring to the tables of local lists, it will be seen that several species well known at the present time were unknown to Dr DeKay: such as the Alder fly-catcher, Prairie horned lark, Rough-winged swallow, Migrant shrike, Louisiana water-thrush, Connecticut warbler, Hudsonian chickadee and Gray-cheeked thrush. But the greater portion of the 100 species which have been added to the State list are uncommon or accidental visitants to this region.

It is impossible to group New York birds according to their mode of occurrence into sharply defined classes, but the following summary may be useful. For a full account of the distribution of each species, however, the reader is referred to the schedules in the local lists, and to the specific descriptions.

I Residents

These are species which are found within the State at all seasons of the year and breed within its borders.

A Species occurring throughout the year in all, or the greater portion of the State. Some of these, like the Red-headed woodpecker, are occasionally migratory, and others, like the Crow, are rarely found in the highlands or colder districts during midwinter.

Ruffed grouse
Bald eagle
American long-eared owl
Short-eared owl
Barred owl
Screech owl
Great horned owl
Hairy woodpecker
Downy woodpecker

Red-headed woodpecker
Blue jay
American crow
House sparrow
American goldfinch
Cedar waxwing
White-breasted nuthatch
Chickadee

B Species that breed throughout the greater portion of the State and occur sparingly during winter in the warmer districts. They are all, however, more common as summer residents. To these some might prefer to add the summer residents mentioned on page 13 which are marked *wr*.

Marsh hawk	Prairie horned lark
Sharp-shinned hawk	Cowbird
Cooper hawk	Meadowlark
Red-tailed hawk	Purple finch
Red-shouldered hawk	Song sparrow
American sparrow hawk	Swamp sparrow
Belted kingfisher	Robin
Northern flicker	Bluebird

C Species which breed more or less commonly in the colder districts and winter in the warmer districts, occurring chiefly as migrants in the greater portion of the State. Those marked *wr* are most typically winter residents.

Loon	White-winged crossbill <i>wr</i>
Herring gull <i>wr</i>	Pine siskin
American merganser <i>wr</i>	White-throated sparrow
Red-breasted merganser	Junco
Black duck	Myrtle warbler
American golden-eye <i>wr</i>	Winter wren
American goshawk	Brown creeper
Saw-whet owl	Red-bellied nuthatch
Yellow-bellied sapsucker	Golden-crowned kinglet
American crossbill <i>wr</i>	Hermit thrush

D Species occurring only in the warmer portions of the State.

American barn owl	Cardinal
Bobwhite	Mockingbird
Red-bellied woodpecker	Carolina wren
Fish crow	Tufted titmouse

INTRODUCED SPECIES

English pheasant	Starling
Ring-necked pheasant	European goldfinch
Skylark	

EXTIRPATED SPECIES

Heath hen	Carolina paroquet
Wild turkey	

E Residents of the colder districts, mostly in the Adirondack region.

Canada grouse	Northern pileated woodpecker
Canadian ruffed grouse	Canada jay
Arctic three-toed woodpecker	Northern raven
American three-toed woodpecker	Hudsonian chickadee

II Summer residents

These are species which are found in the State during the summer and breed more or less commonly within its borders. Those marked *wr* are occasionally found during winter in the southern districts but from the evidence at hand we find them to belong more characteristically to this group than to that of permanent residents. Those marked with a (?) are not known to breed regularly at the present time.

A Species which breed throughout the greater portion of the State:

Pied-billed grebe <i>wr</i>	Ruby-throated hummingbird
Hooded merganser <i>wr</i>	Kingbird
Wood duck	Crested flycatcher
American bittern <i>wr</i>	Phoebe
Least bittern	Wood pewee
Great blue heron <i>wr</i>	Least flycatcher
Green heron	Bobolink
Black-crowned night heron <i>wr</i>	Red-winged blackbird <i>wr</i>
Virginia rail <i>wr</i>	Baltimore oriole
Sora <i>wr</i>	Bronzed grackle <i>wr</i>
American woodcock <i>wr</i>	Vesper sparrow <i>wr</i>
Bartramian sandpiper	Savanna sparrow <i>wr</i>
Spotted sandpiper	Chipping sparrow
Killdeer <i>wr</i>	Field sparrow <i>wr</i>
Passenger pigeon ?	Towhee <i>wr</i>
Mourning dove <i>wr</i>	Rose-breasted grosbeak
Broad-winged hawk <i>wr</i>	Indigo bird
Duck hawk <i>wr</i>	Scarlet tanager
American osprey	Purple martin
Yellow-billed cuckoo	Cliff swallow
Black-billed cuckoo	Barn swallow
Whip-poor-will	Tree swallow
Night hawk	Bank swallow
Chimney swift	Migrant shrike <i>wr</i>

Red-eyed vireo	Ovenbird
Warbling vireo	Northern yellowthroat
Yellow-throated vireo	American redstart
Black and white warbler	Catbird <i>wr</i>
Northern parula warbler	Brown thrasher <i>wr</i>
Yellow warbler	House wren
Chestnut-sided warbler	Long-billed marsh wren <i>wr</i>
Black-throated green warbler	Wood thrush
Pine warbler <i>wr</i>	Wilson thrush

B Species breeding in the warmer districts. Most of these belong to the Carolinian fauna, but some like the Common tern, though not properly belonging to that fauna, in this State breed only in the southern portions.

Laughing gull ?	Rough-winged swallow
Common tern	White-eyed vireo
Roseate tern	Worm-eating warbler
Least tern ?	Blue-winged warbler
Snowy heron ?	Golden-winged warbler
Clapper rail <i>wr</i>	Lawrence warbler ?
King rail <i>wr</i>	Brewster warbler ?
Florida gallinule	Southern parula warbler
Piping plover	Cerulean warbler
Green-crested flycatcher	Prairie warbler
Orchard oriole	Louisiana water-thrush
Purple grackle <i>wr</i>	Kentucky warbler
Grasshopper sparrow	Yellow-breasted chat
Henslow sparrow	Hooded warbler
Sharp-tailed sparrow <i>wr</i>	Short-billed marsh wren
Seaside sparrow <i>wr</i>	Blue-gray gnatcatcher ?
Dickcissel ?	

C Species breeding mainly in the colder districts, and belonging mostly to the Canadian fauna.

Black tern	Yellow-bellied flycatcher
Blue-winged teal	Alder flycatcher
American coot	Rusty blackbird <i>wr</i>
Wilson snipe <i>wr</i>	Lincoln sparrow
Solitary sandpiper ?	Carolina junco ?
Pigeon hawk <i>wr</i>	Blue-headed vireo
Olive-sided flycatcher	Nashville warbler

Tennessee warbler
 Black-throated blue warbler
 Magnolia warbler
 Blackpoll warbler
 Blackburnian warbler

Northern water-thrush
 Mourning warbler
 Canadian warbler
 Bicknell thrush
 Olive-backed thrush

III Transients

These are species which pass through the State while migrating to and from their breeding grounds, which lie to the north or northwest of this State. Some of these, like the Long-tailed jaeger, Arctic tern, and Blue goose seem to be rare migrants with us, but appear to belong to this category more than that of accidental visitants. Species marked *wr* are sometimes found throughout the winter in the warmer portions of the State, those marked *b* have been known to breed in the State.

Pomarine jaeger
 Parasitic jaeger
 Long-tailed jaeger
 Sabine gull
 Caspian tern
 Forster tern
 Arctic tern
 Leach petrel
 Cormorant *wr*
 Double-crested cormorant *wr*
 White pelican
 Mallard *b, wr*
 Gadwall
 Baldpate
 Green-winged teal *b, wr*
 Shoveler *b*
 Pintail *wr*
 Ring-necked duck
 Ruddy duck *b, wr*
 Greater snow goose
 Blue goose
 White-fronted goose
 Hutchins goose
 Whistling swan
 Yellow rail *wr*

Red phalarope
 Northern phalarope
 Wilson phalarope
 Dowitcher
 Long-billed dowitcher
 Stilt sandpiper
 Knot
 Pectoral sandpiper
 White-rumped sandpiper
 Baird sandpiper
 Least sandpiper
 Red-backed sandpiper
 Semipalmated sandpiper
 Western sandpiper
 Sanderling *wr*
 Marbled godwit
 Hudsonian godwit
 Greater yellow-legs *wr*
 Yellow-legs
 Willet
 Buff-breasted sandpiper
 Long-billed curlew
 Hudsonian curlew
 Eskimo curlew
 Black-bellied plover

American golden plover	Cape May warbler
Semipalmated plover	Bay-breasted warbler
Turnstone	Palm warbler
Golden eagle <i>b, wr</i>	Yellow palm warbler
Nelson sparrow	Connecticut warbler
Acadian sharp-tailed sparrow	Wilson warbler
White-crowned sparrow	American pipit <i>wr</i>
Fox sparrow <i>wr</i>	Ruby-crowned kinglet
Philadelphia vireo	Gray-cheeked thrush
Orange-crowned warbler	

IV Winter visitants

A Species found in this State in the winter and retiring to higher latitudes in summer to breed.

Red-throated loon	Gyr Falcon
Puffin	Black gyrfalcon
Brünnich murre	Great gray owl
Razor-billed auk	Richardson owl
Dovekie	Snowy owl
Kittiwake	American hawk owl
Glaucous gull	Horned lark
Iceland gull	Evening grosbeak
Kumlien gull	Pine grosbeak
Great black-backed gull	Redpoll
Canvasback	Holboell redpoll
Barrow golden-eye	Greater redpoll
Old-squaw	Snowflake
Harlequin duck	Lapland longspur
Labrador duck (<i>extinct</i>)	Ipswich sparrow
American eider	Tree sparrow
King eider	Bohemian waxwing
Purple sandpiper	Northern shrike
American rough-legged hawk	

B Species occurring in the warmer districts, or on the seacoast during winter, but more common as migrants both on the coast and in the interior.

Holboell grebe	Bonaparte gull
Horned grebe <i>b</i>	Gannet
Ring-billed gull	Red-head

Greater scaup	White-winged scoter
Lesser scaup	Surf scoter
Buffle-head	Canada goose
American scoter	White-bellied brant

V Summer visitants

These are species which occur during summer but breed in more southern latitudes, and wander northward after their nesting season is over, or like the Summer tanager, overreach their normal range during migration, but are not known to breed within our boundaries.

Cory shearwater	Little blue heron
Greater shearwater	Yellow-crowned night heron
Sooty shearwater	Black rail ? (<i>summer resident</i>)
Gull-billed tern	Wilson plover
Sooty tern	American oyster catcher
Black skimmer	Turkey vulture
Wilson petrel	Swallow-tailed kite
Glossy ibis	Summer tanager
American egret	

VI Accidental visitants

These are species whose breeding range, or usual migration route, is far from our borders and which occur in our State very rarely or accidentally.

A Southern species: summer visitants which have occurred only one, two, or three times.

Royal tern	Wood ibis
Cabot tern	Louisiana heron
Trudeau tern	Purple gallinule
Audubon shearwater	Ground dove
Black-capped petrel	Black vulture
Scaled petrel	Gray kingbird
Yellow-billed tropic bird	Blue grosbeak
Booby	Painted bunting
Brown pelican	Prothonotary warbler
Man-o'-war bird	Yellow-throated warbler
White ibis	Brown-headed nuthatch
White-faced glossy ibis	Carolina chickadee ?

B Western species which live mostly beyond the Mississippi river and casually wander to New York during their migrations.

Cinnamon teal	Bullock oriole
Lesser snow goose	Chestnut-collared longspur
Black brant	Baird sparrow
Trumpeter swan ?	Leconte sparrow
Whooping crane (<i>formerly</i>)	Lark sparrow
Sandhill crane	Gambel sparrow
American avocet	Lark bunting
Black-necked stilt	Louisiana tanager
Swainson hawk	Plumbeous vireo
Burrowing owl	Grinnell water-thrush
Arkansas kingbird	Townsend solitaire
Hoyt horned lark	Varied thrush
Yellow-headed blackbird	

C Northern species which have reached our territory on only one or two occasions but might be regarded as rare winter visitants

Black-throated loon	Willow ptarmigan
Black guillemot	White gyrfalcon ?
Skua	Hoary redpoll ?
Ivory gull	

D European species

Little gull	Dunlin
Manx shearwater ?	Curlew sandpiper
Stormy petrel ?	Ruff
Widgeon	European curlew
European teal	Lapwing
Rufous-crested duck	European linnet?
Barnacle goose	Green finch?
Corn crake	Wheatear

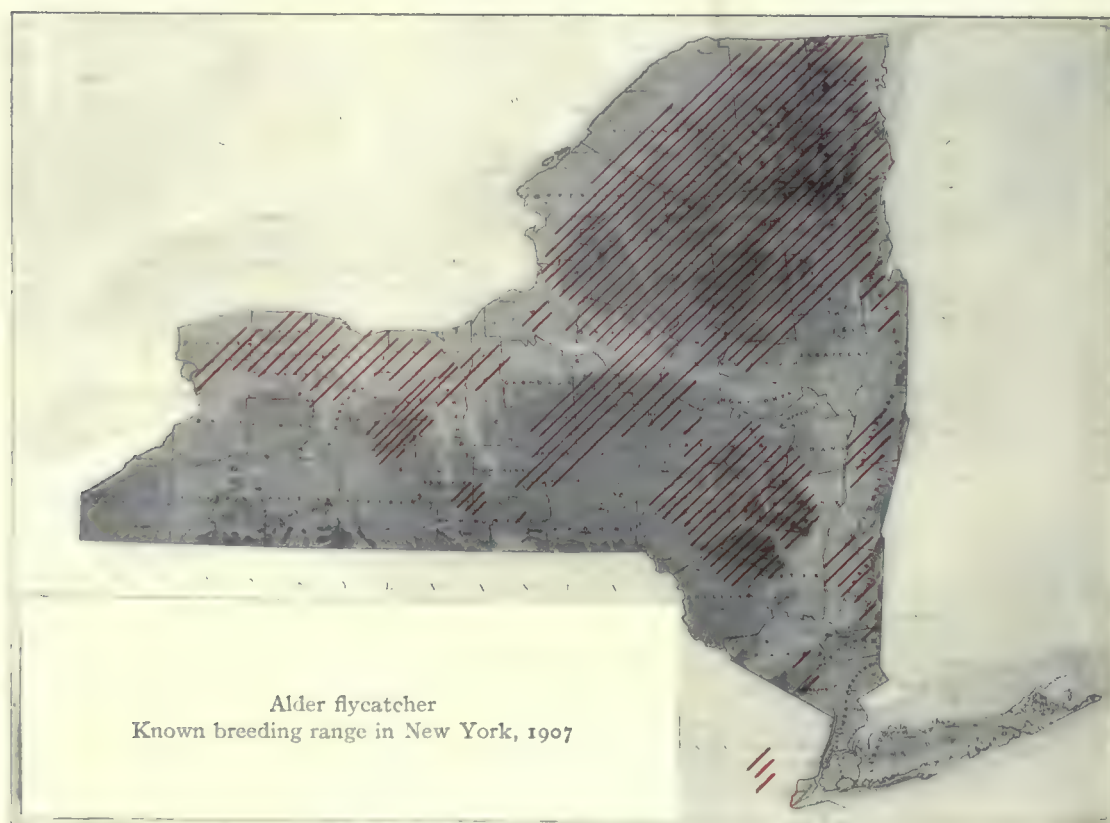
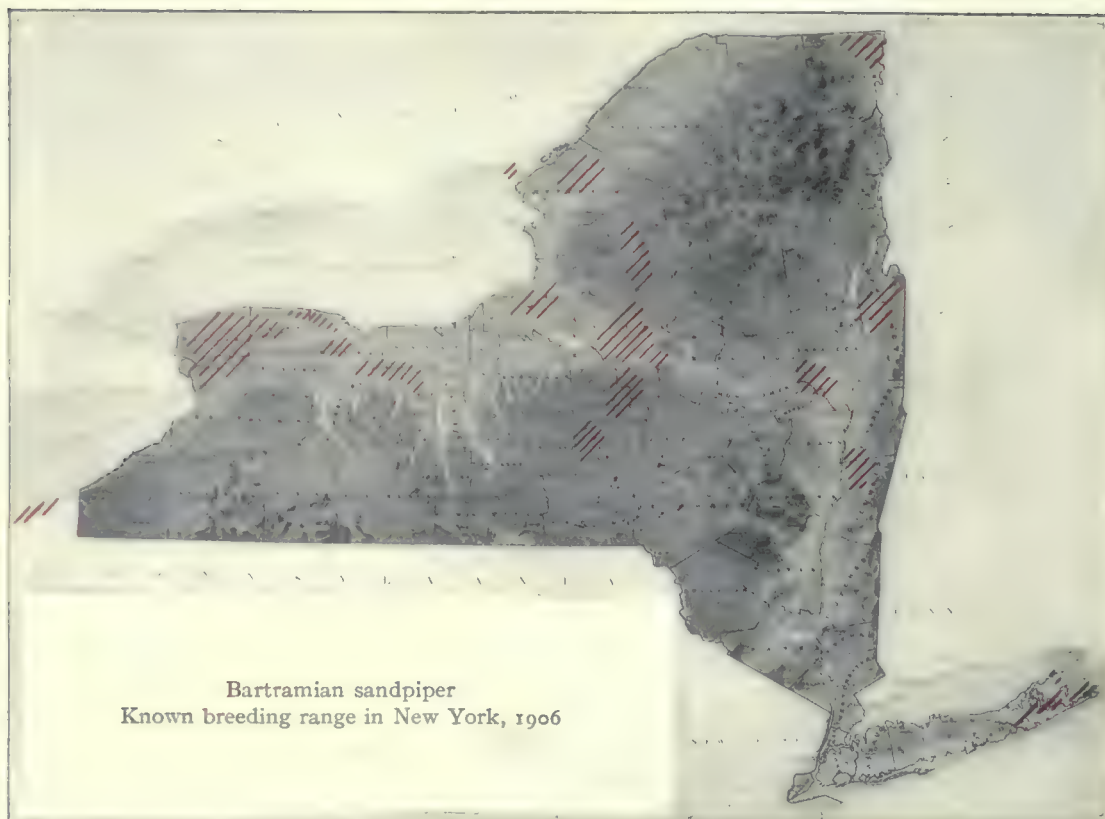
LIFE ZONES OF NEW YORK STATE

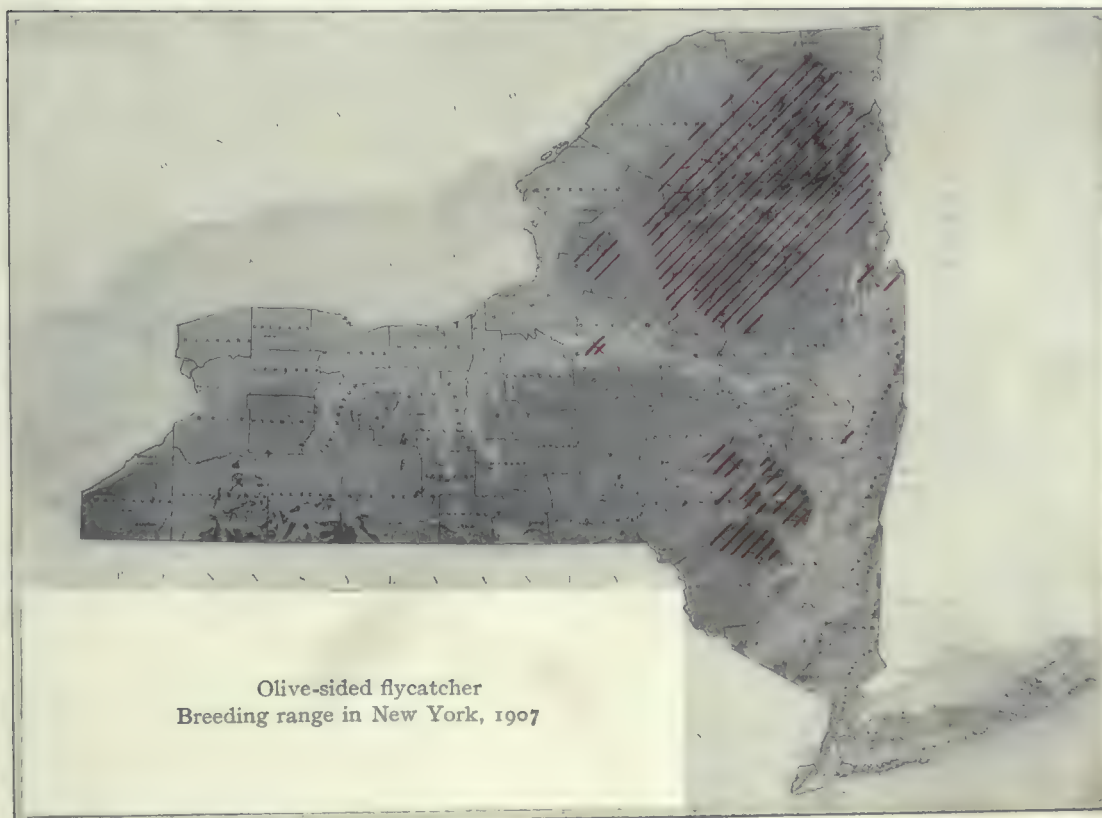
With reference to the distribution of plant and animal life in North America, Dr C. Hart Merriam has proposed to divide the continent into Boreal, Austral and Tropical "regions"¹ of which the first two are represented in New York. He has further divided these regions into "zones";² the Boreal region into the Arctic, Hudsonian and Canadian zones; and the Austral region into the Transition, Upper Austral, and Lower Austral zones. These zones of the Austral region are again divided into humid or eastern, and arid or western faunal areas, the eastern subdivision of the Transition zone being called the Alleghanian faunal area, and the eastern division of the Upper Austral zone, the Carolinian faunal area. These terms are so well recognized at the present time that they will be employed in this discussion of bird distribution in New York, the Carolinian, the Alleghanian, and the Canadian faunas, as well as a slight tinge of the Hudsonian, being represented within the State.

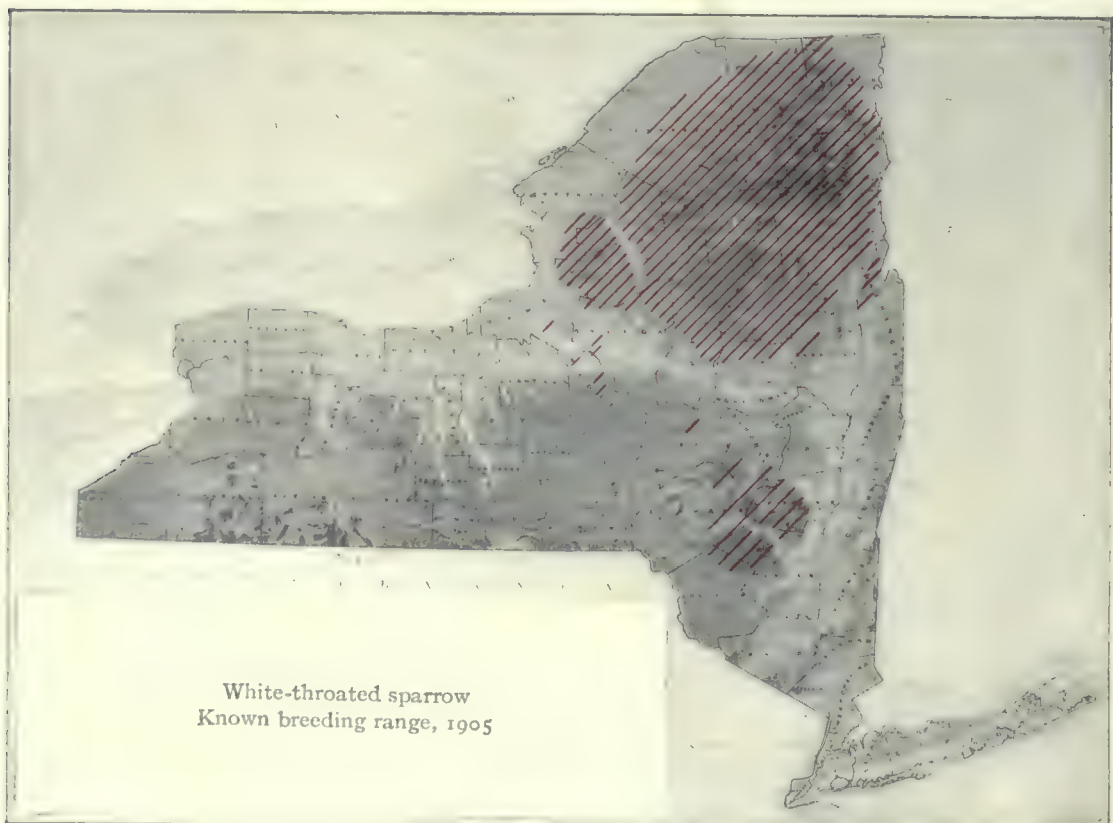
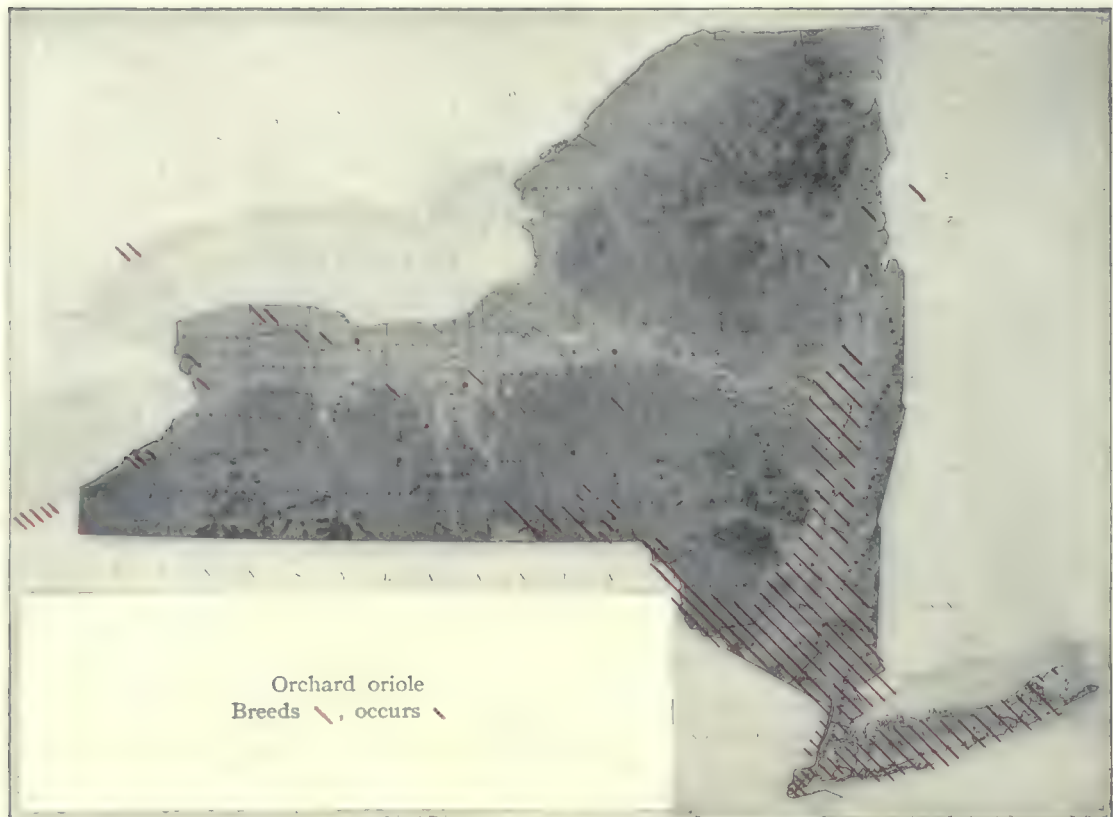
The limits of these zones, Dr Merriam determines by laws of temperature control [*loc. cit.* p. 54]. Taking the "sum of normal mean daily temperatures above 43°F. (6° C.)" as determining the northern limits of the respective zones, the plants and animals of the Lower Austral require an annual total of at least 18000° F. (10000° C.), those of the Upper Austral 11500° F. (6400° C.), and those of the Transition 10000° F. (5500° C.). "The southward distribution is governed by the mean temperature of a brief period during the hottest part of the year," the "normal mean temperature of the six hottest consecutive weeks" furnishing a satisfactory basis of determination. Thus the southern limit of the Hudsonian is estimated to be the isotherm for the six hottest weeks of 57.2° F. (14° C.), while the southern limit of the Canadian is found to be 64°.4 F. (18° C.), of the Transition 71°.6 F. (22° C.), of the Upper Austral 78°.8 F. (26° C.). The actual dis-

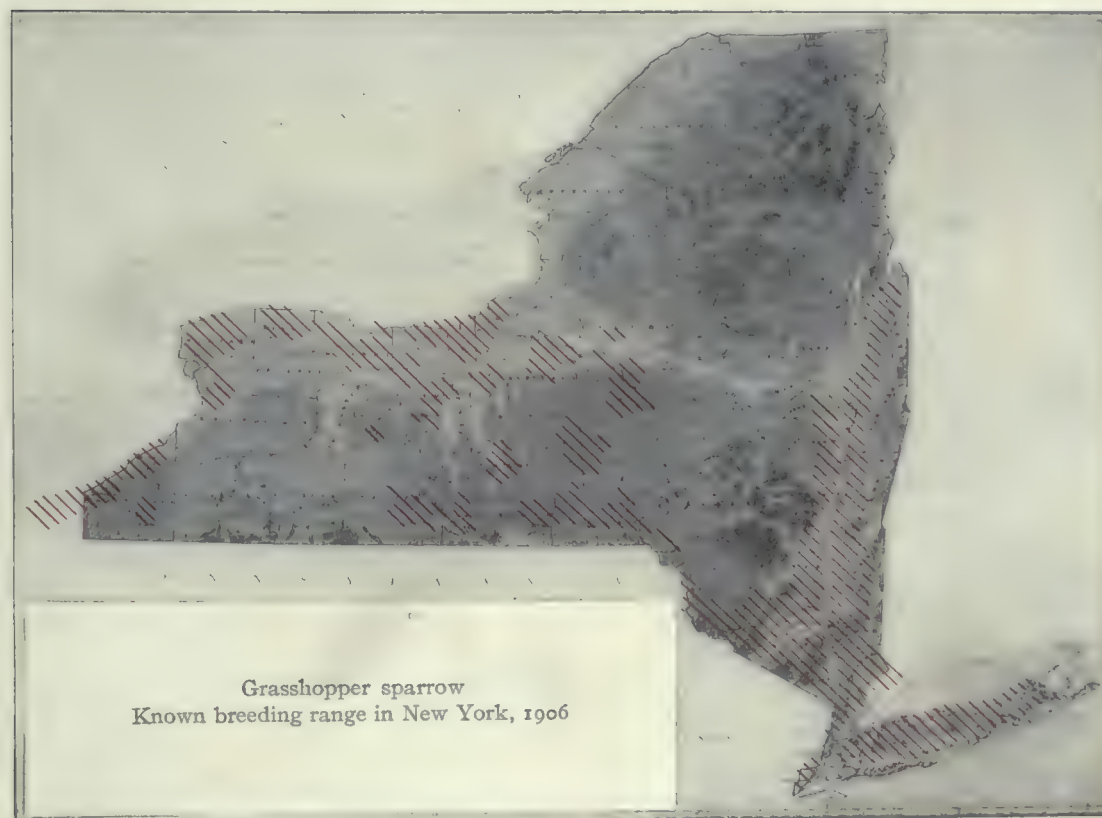
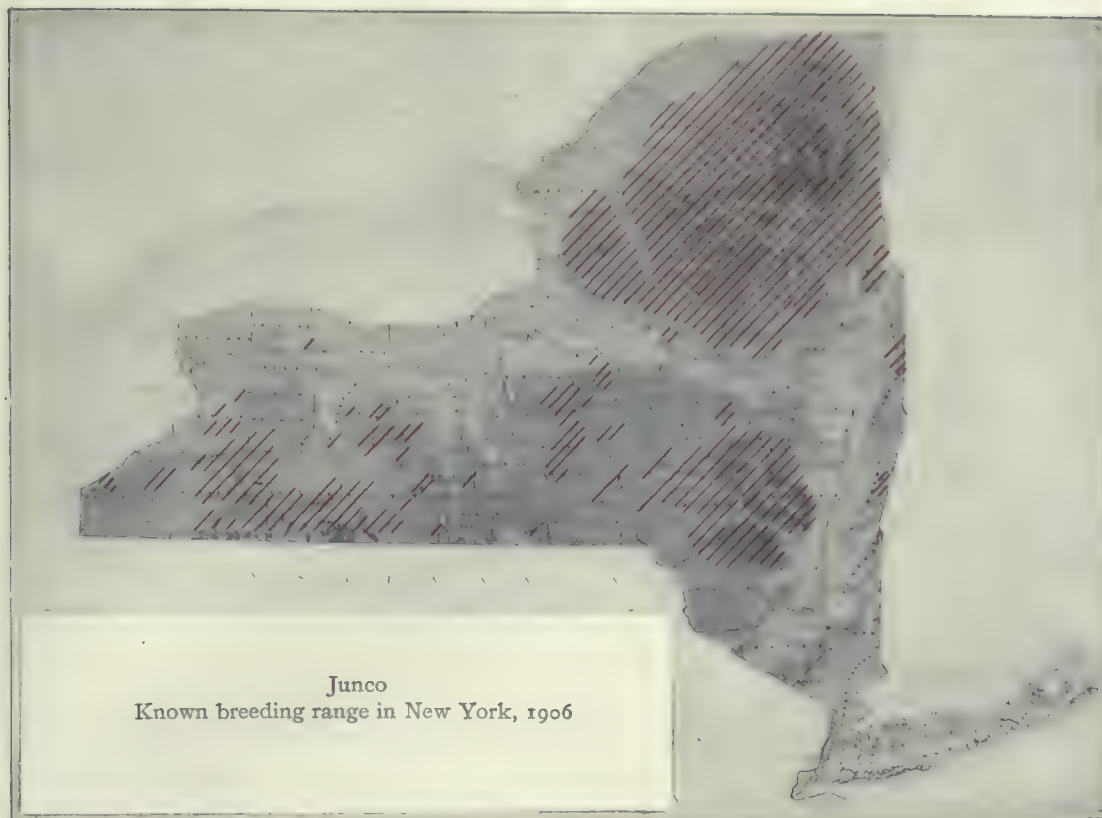
¹The Geographic Distribution of Life in North America. Smithsonian Inst. Rep't, 1891, p. 365-415.

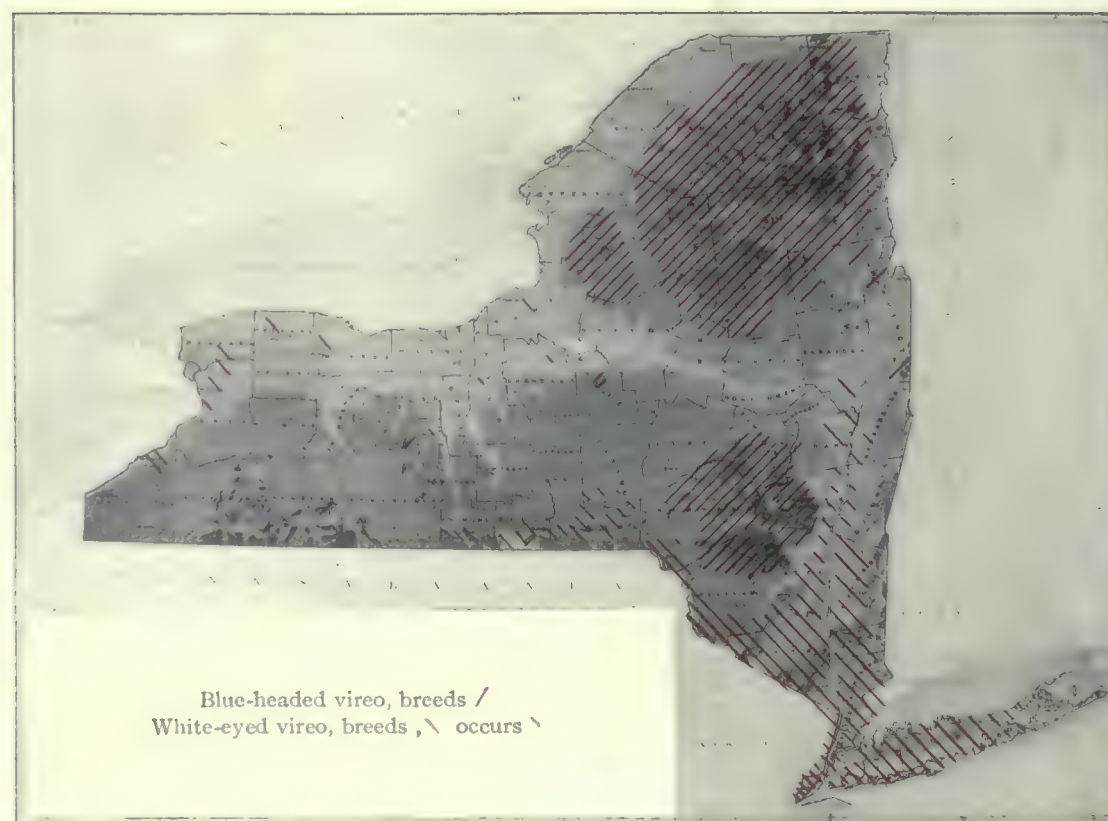
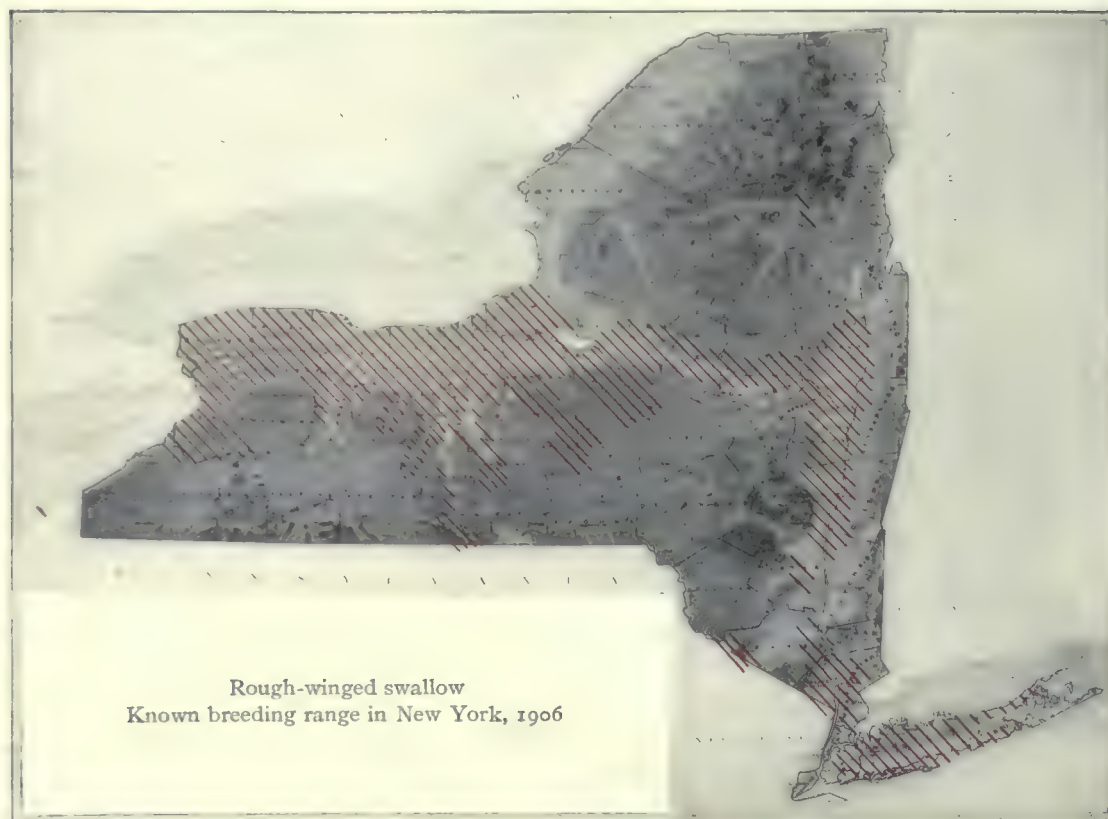
²U. S. Dep't Agric., Biol. Sur., Bul. 10, 1898, p. 18-31.

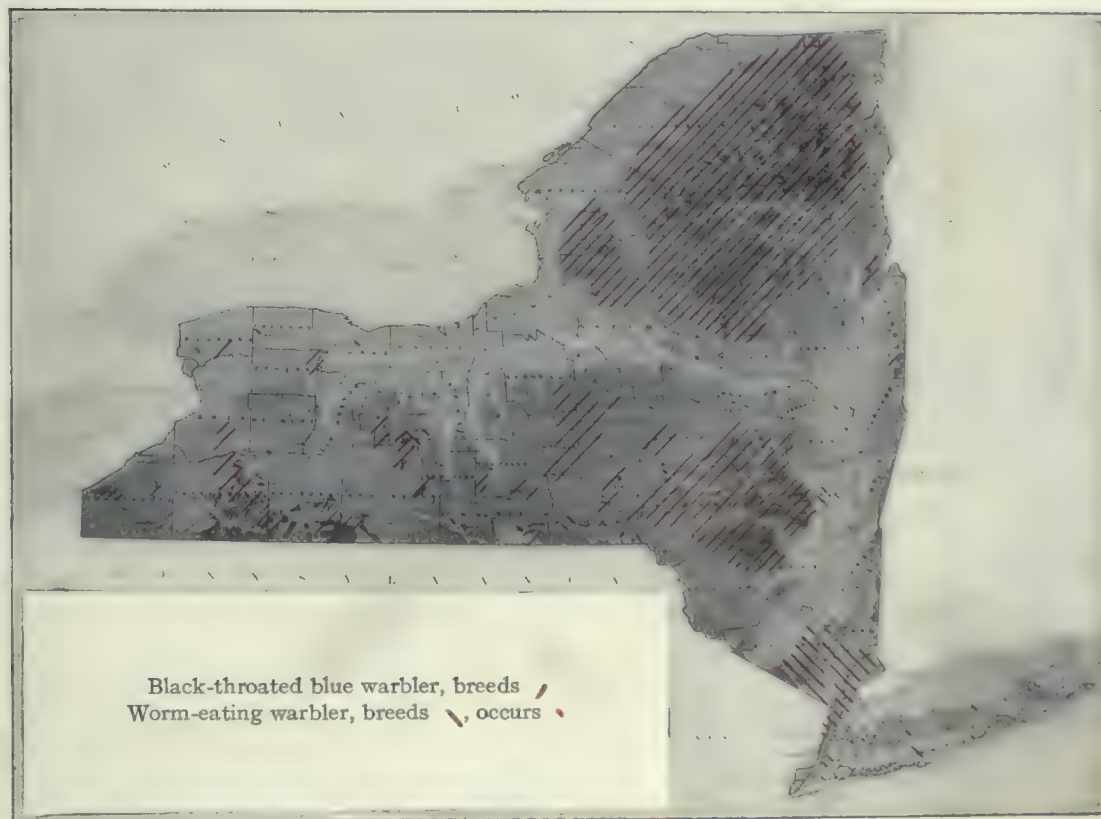
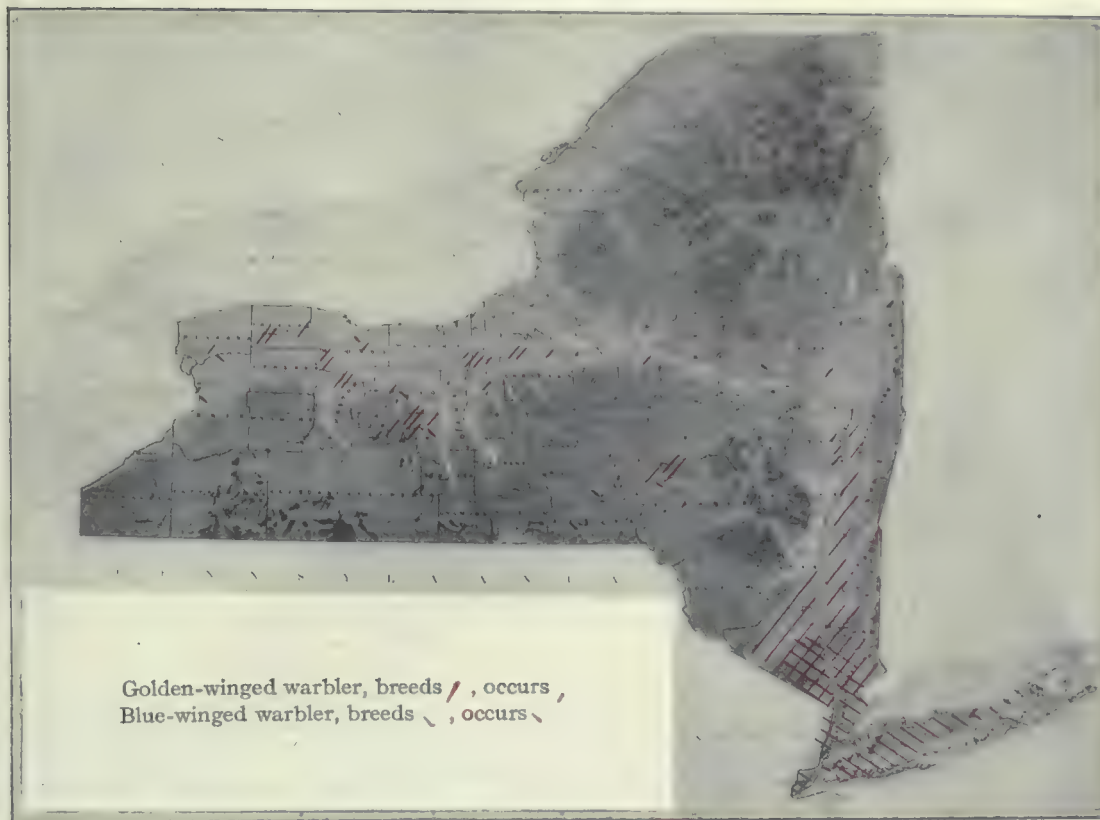


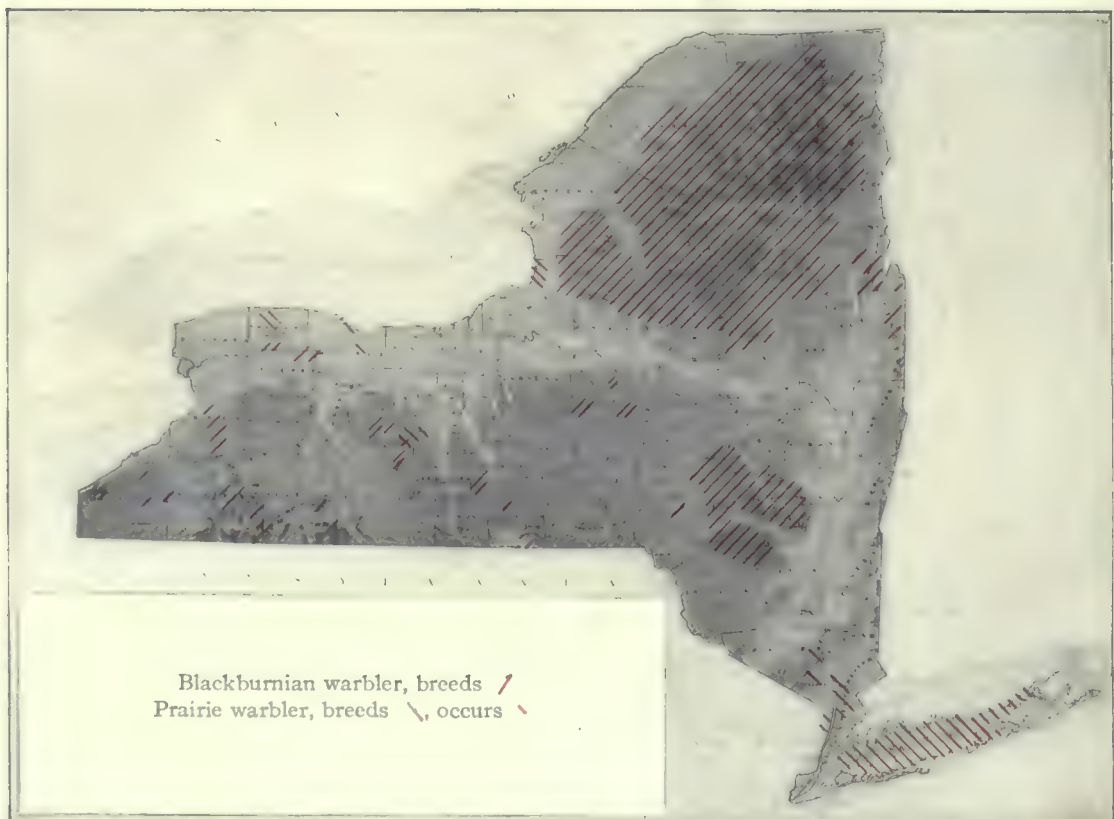
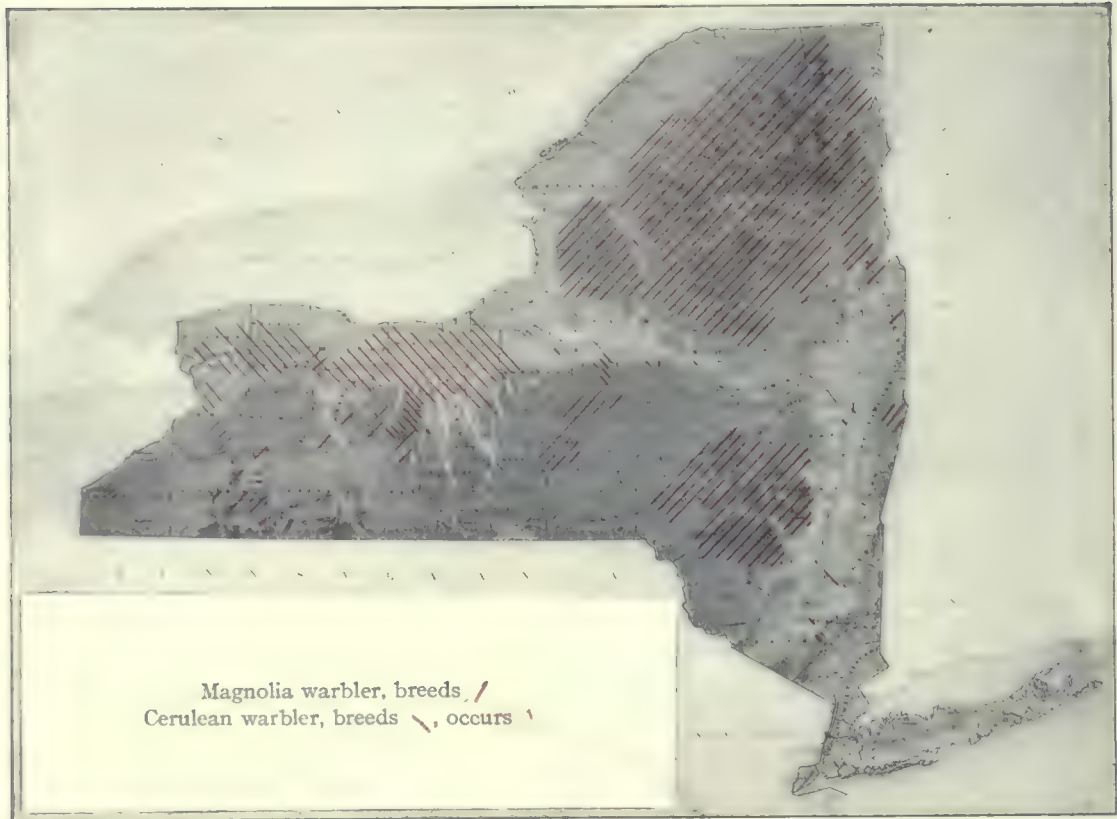


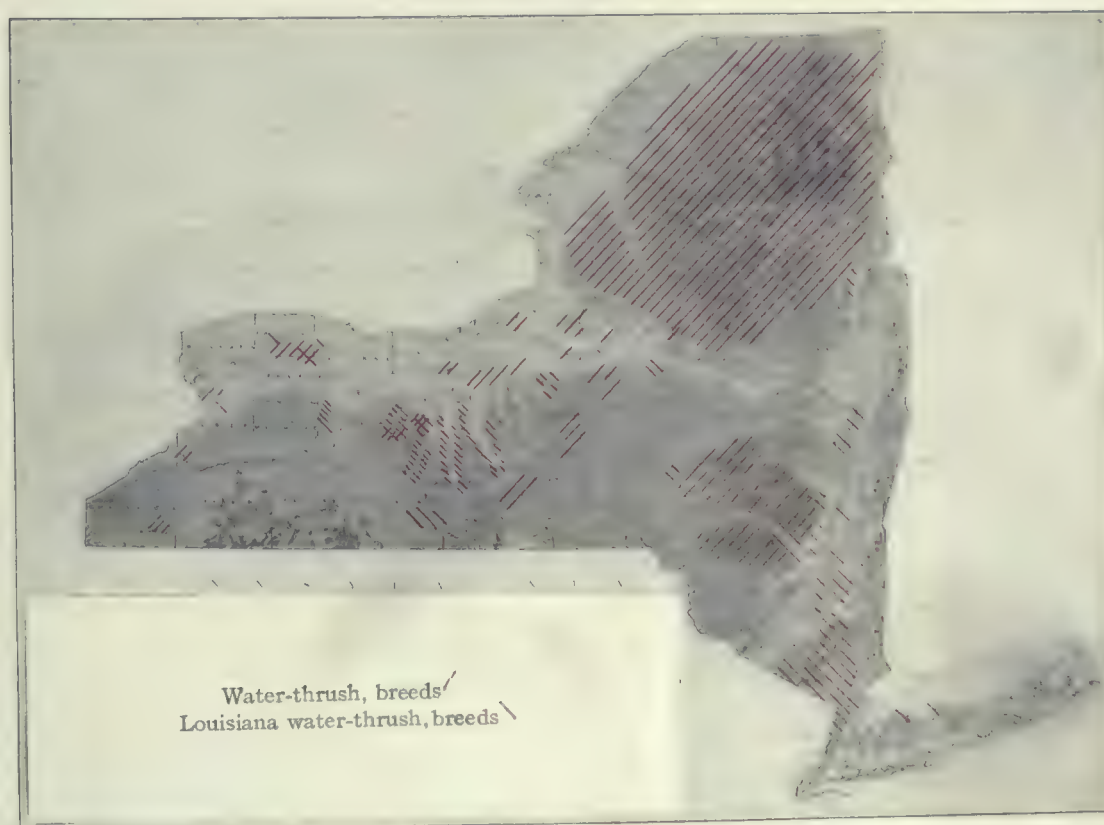
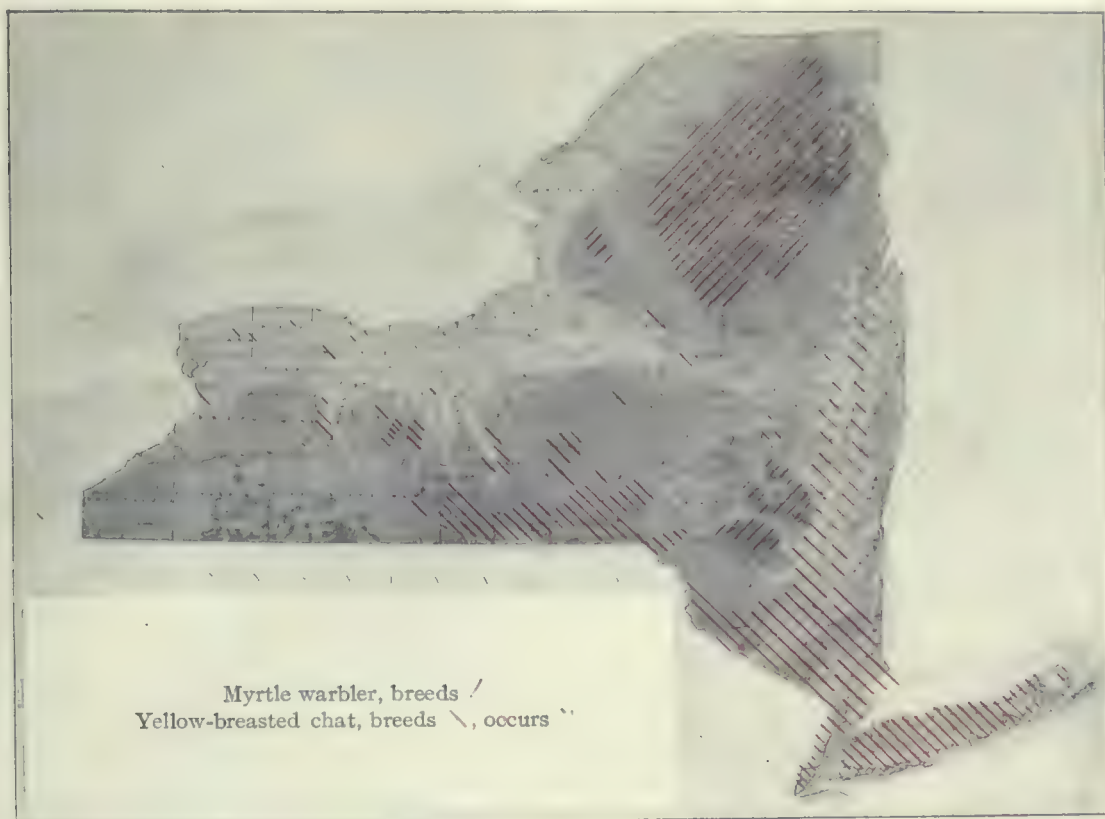


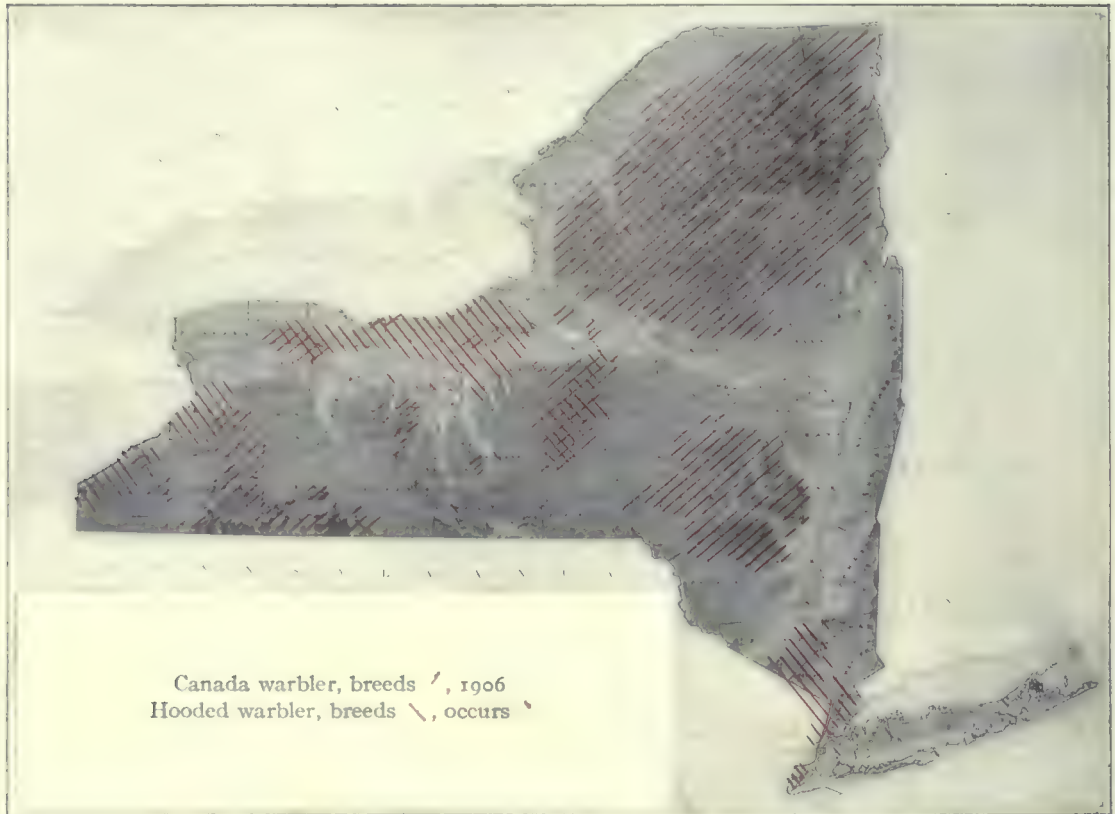


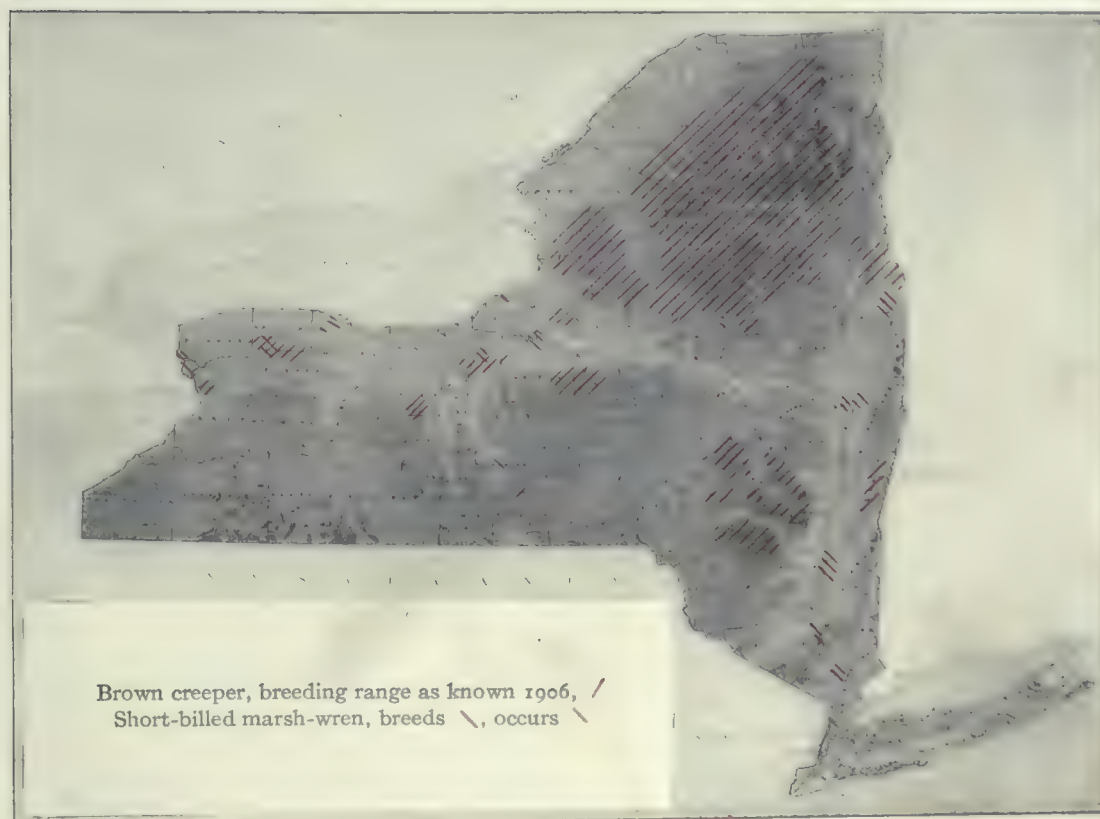
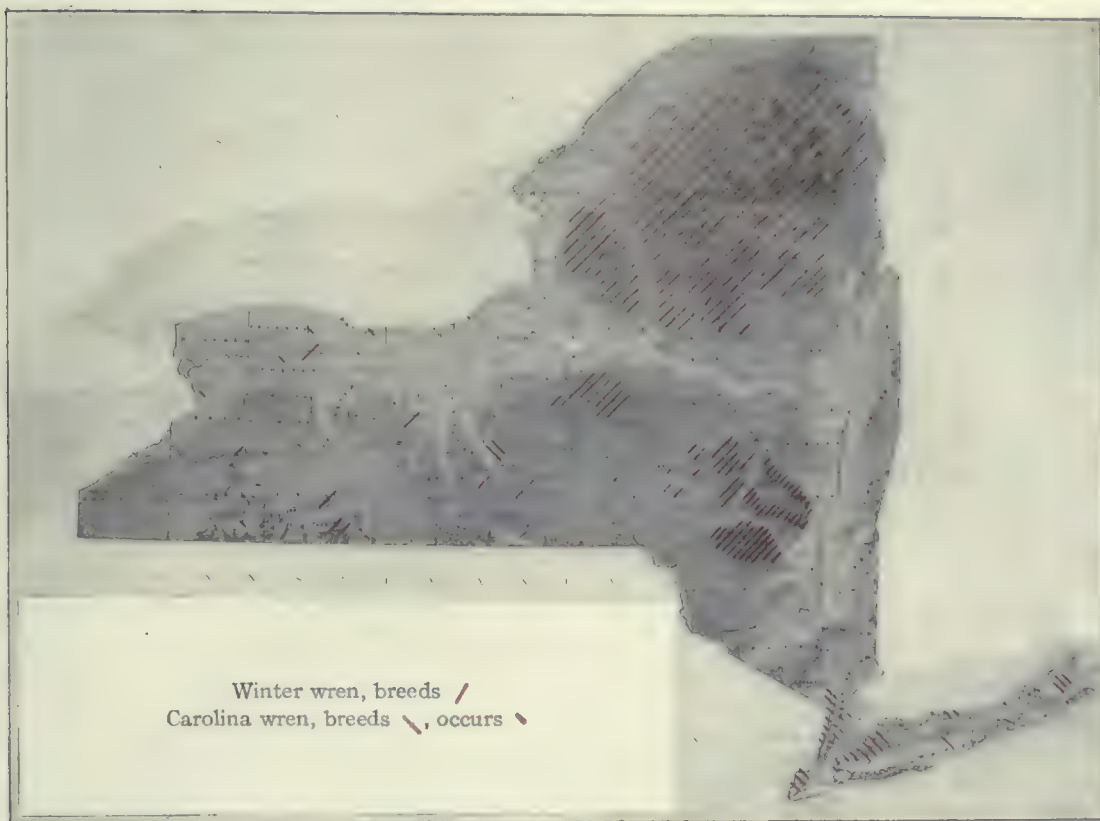


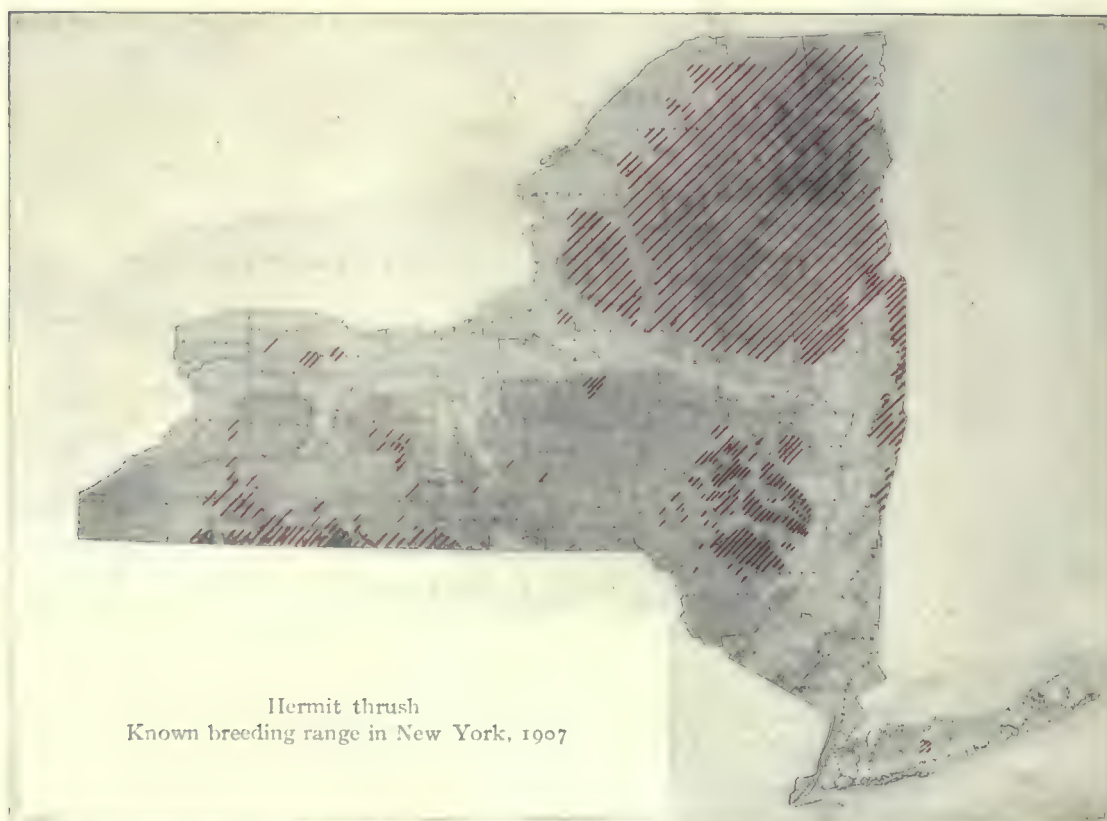
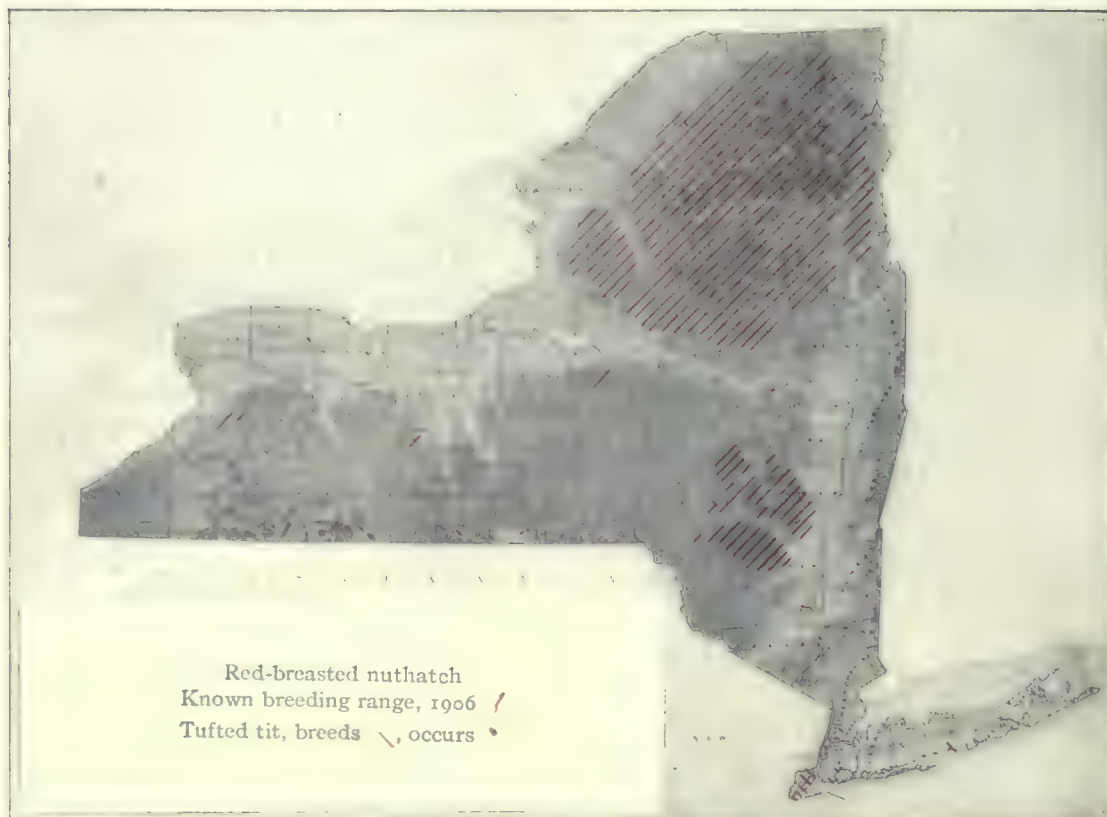












tribution of plants and animals, which properly determines the boundaries of the life zones, agrees so nearly with the limits determined by these laws of temperature control that the boundaries shown on the maps of the Biological Survey have been fixed according to the temperature. This, while accurate in general, is slightly misleading when applied to the distribution of birds and mammals in New York State, on account of the peculiar conditions obtaining.

New York is so situated topographically that it neither connects intimately with the Boreal zone on the north nor with the Upper Austral on the south. The Adirondacks are separated from the main Canadian zone by lowlands of less than 500 feet elevation which are typically Alleghanian in fauna. The coastal region, Staten Island, Long Island, and the Lower Hudson valley, is practically or nearly shut off from the southern coastal plain by the encroachment of the New Jersey highlands and by the tidal waters, which though not wholly efficient as barriers, nevertheless check to an appreciable extent the influx of the usually sedentary species or less ambitious migrants of the Carolinian fauna. The Hudson valley, extending northward between two highlands of Boreal affinities, is still further cut off from easy connection with the Carolinian area by the extension of the Hudson highlands diagonally across the valley. The lowland of western New York is practically shut off from direct communication to the southward with the Carolinian area by the broad northern expansion of the Alleghany plateau which extends westward from the Catskills entirely across the southern portion of the State bordering on Pennsylvania. Thus the only efficient connection of this lowland with the Upper Austral is by a narrow strip along Lake Erie, and through southern Ontario and Michigan. For this reason the Carolinian birds which breed in the Lake Ontario lowland of New York are almost entirely migratory species like the Chat and Large-billed water-thrush, the more sedentary or resident species failing to establish themselves permanently on account of the severe winters with deep snows, which destroy such species as the Bobwhite and Carolina

wren. When these birds have once been killed off, before their successors can invade the country again by the difficult or circuitous route from their center of abundance in the south, other hard winters appear and thus they are held continually in check.

The Carolinian faunal area which is the eastern or humid division of the Upper Austral zone defined above, is the warmest of the life areas represented in New York. According to the temperature limits mentioned, this area would include Staten Island, the principal portion of Long Island, and the Hudson valley as far north as southern Saratoga county. "Counting from the north, the Carolinian area is that in which the sassafras, tulip tree, hackberry, sycamore, sweet gum, rose-magnolia, red bud, persimmon, and short-leaf pine first make their appearance, together with the opossum, gray fox, fox squirrel, Cardinal bird, Carolina wren, Tufted tit, Gnatcatcher, Summer tanager, and Yellow-breasted chat. Chestnuts, hickory nuts, hazelnuts, and walnuts grow in abundance" [Merriam]. These characteristic plants and animals are well represented in the vicinity of New York city, but, of the birds mentioned the Gnatcatcher and Summer tanager are not known to breed even on Staten Island. As one passes up the Hudson valley there is less and less evidence of the Carolinian flora, and, of the characteristic birds mentioned above, after the Highlands are passed only the Yellow-breasted chat is an established species. In western New York the sassafras, tulip tree and sycamore are well represented, but the opossum, gray fox and fox squirrel have rarely been taken, and must be regarded as only accidental. All the birds mentioned in the above quotation have occurred in western New York, but only the Yellow-breasted chat is an established breeding species, and is local in distribution.

The following table will show the proportion of Carolinian elements in the bird fauna of the different districts in New York which have been considered of Upper Austral affinities. The average temperature of the hottest six weeks of summer is taken from the records of the United States Meteorological Bureau.

BREEDING SPECIES	Staten Island (about 73° F.)	Lower Hudson 72.5-73.5° F.	Western Long Island 72-73.5° F.	Eastern Long Island 71-72.4° F.	Upper Hudson 71-73° F.	Western New York lowland 60-71° F.
Bobwhite.....	f c	f c	f c	f c	rare	rare
Orchard oriole.....	f c	c	c	f c	unc	rare
Grasshopper sparrow....	c	c	c	c	f c	f c
Cardinal.....	unc	unc	rare	—	—	—
Rough-winged swallow..	unc	unc	unc	unc	unc	f c
White-eyed vireo.....	c	c	c	f c	unc	rare
Blue-winged warbler....	f c	c	c	unc	—	—
Golden-winged warbler..	—	unc	rare	?	unc	unc
Prairie warbler.....	—	unc	c	c	—	rare
Louisiana water-thrush..	—	c	?	—	f c local	c local
Kentucky warbler.....	—	unc	—	?	—	?
Yellow-breasted chat....	c	c	c	f c	unc	unc local
Hooded warbler.....	unc	c	—	—	—	c local
Carolina wren.....	unc	f c local	unc	c local	—	?
Tufted titmouse.....	f c	—	—	?	—	—

c=common; f c=fairly common; unc=uncommon

It is evident that the western New York lowland both from its temperature and its fauna is Alleghanian with a slight admixture of Carolinian forms. The Bobwhite, Grasshopper sparrow, Rough-winged swallow, Golden-winged warbler, Prairie warbler, Louisiana water-thrush, and Hooded warbler are not strictly Carolinian species, but all have their northern breeding limit in the Alleghanian (Transition zone), although they are more common in the Carolinian (Upper Austral) zone. In the case of Mammalia western New York is even more strongly Alleghanian.

On account of the great diversity of soils, slopes and drainage systems in New York, and the greater or less isolation of its cold and warm areas,

there is often a peculiar intermingling of northern and southern forms. Thus, species which are ordinarily regarded as Carolinian may be found breeding side by side with Canadian species, and although the Alleghanian species are the most abundant in those localities, the Transition zone seems to have lost its special character by the Carolinian fauna being joined directly with the Canadian. This effect though noticeable to a certain extent in the Catskill region, as has been shown by Mr Bicknell, is particularly evident in western New York as will be seen in the account of the Potter Swamp area. The plateau and lowland of western New York west of the 75th meridian slopes from an altitude of about 2000 feet near the Pennsylvania line to 250 feet on Lake Ontario. Though its slope and drainage is chiefly to the north, the waters of this region reach the sea at such widely diverse points as the Gulf of St Lawrence, New York bay, Delaware bay, Chesapeake bay and the Gulf of Mexico. The plateau region thus is reached by the narrow extension northward of the Delaware, Susquehanna and Alleghany valleys, but at such a high altitude that few southern forms are introduced by those routes. There is little or no evidence that Carolinian forms come into western New York by way of the Mohawk valley, but the chief influx is from the west by way of southern Ontario, and along the southern shore of Lake Erie, and from the south along the Delaware and Susquehanna valleys. In the Adirondacks and Catskills the Canadian fauna is entirely surrounded by the Alleghanian which ascends all the valleys to the very hearts of those regions. The eastern end of Long Island, cooled by the sea, is mostly Alleghanian in its fauna, but still strongly tinged with the Carolinian.

The Alleghanian faunal area in New York, though perplexing to map out accurately, certainly includes the greater portion of the State and its birds are the most abundant and well known in all localities from Long Island to the spruce and fir line of the Catskills and Adirondacks. In this area "the chestnut, walnut, oaks, and hickories of the south meet and overlap the beech, birch, hemlock, and sugar maple of the north; the southern mole and cottontail rabbit meet the northern star-nosed and Brewer's moles and varying hare, and the southern bobwhite, Baltimore oriole, bluebird, catbird, chewink, thrasher, and wood thrush live in or near the

haunts of the bobolink, solitary vireo, and the hermit and Wilson thrushes." This quotation from Dr Merriam meets the conditions throughout western New York excepting that the southern mole and Bobwhite are rare or absent in most localities and the Solitary vireo seems to be more allied with the Canadian fauna. The same statement might be applied to the borders of the Catskill and Adirondack regions, as far as the spruce and fir line.

The Canadian zone comprises the southern part of the great trans-continental coniferous forest of Canada, the northern parts of Maine, New Hampshire, and Michigan, the Green mountains, Adirondacks and Catskills, and the higher mountains of Pennsylvania, West Virginia, Virginia, western North Carolina, and eastern Tennessee. Among the many characteristic mammals and birds of the Canadian zone are the lynx, marten, porcupine, northern red squirrel, varying rabbit, star-nosed and Brewer's moles, voles, long-tailed shrews, northern jumping mice, white-throated sparrow, Blackburnian and yellow-rumped warblers, olive-backed thrush, three-toed woodpecker, spruce grouse, crossbills, and Canada jays.

The Adirondack country, after the spruce and fir line is passed, is purely Canadian in its fauna, but the Alleghanian birds, which surround it on all sides, invade it along the cleared tracts and river valleys. All the mammals and birds mentioned above as characteristic of the Canadian zone breed in the Adirondacks. In the Catskills a higher altitude must be reached before the Canadian plants and animals are met with but the higher summits are all Canadian although the Spruce grouse, Canada jay, and American three-toed woodpecker are not natives of that country. The highlands along the Pennsylvania border in southwestern New York and numerous swamps and ravines in eastern New York, the central lake region, and western New York, wherever the altitude is above 1000 feet, are strongly tinged with the Canadian fauna, showing all gradations from the condition exhibited in the Catskills to that found in Bergen swamp, Genesee county, and the smaller gullies of the lower Finger Lakes, where two or three Canadian birds may be found nesting with the generally distributed transition species.

The following chart will illustrate the distribution of all our breeding species in the three life zones of New York.

	CAROLINIAN	ALLEGHANIAN	CANADIAN
Pied-billed grebe.....			
Loon.....			
Herring gull.....			
Laughing gull.....	— —		
Common tern.....		—	
Roseate tern.....		—	
Least tern.....		—	
Black tern.....		—	
American merganser.....			
Red-breasted merganser.....			
Hooded merganser.....		— — — —	
Mallard.....		— —	
Black duck.....	—		
Blue-winged teal.....		— — —	
Wood duck.....	— — — —		
American golden-eye.....			
Ruddy duck.....		—	
American bittern.....			
Least bittern.....		— — — —	
Great blue heron.....	— — — —	— — — —	
Green heron.....	— — — —	— — — —	
Black-crowned night heron.....	— — — —	— — — —	
King rail.....	— — — —	— — — —	
Clapper rail.....	— — — —	— — — —	
Virginia rail.....	— — — —	— — — —	
Carolina rail.....	— — — —	— — — —	
Florida gallinule.....	— — — —	— — — —	
American coot.....	— — — —	— — — —	
American woodcock.....	— — — —	— — — —	
Wilson snipe.....	— — — —	— — — —	

	CAROLINIAN	ALLEGHANIAN	CANADIAN
Solitary sandpiper.....			---
Bartramian sandpiper.....	---	---	
Spotted sandpiper.....			
Killdeer.....	---	---	
Piping plover.....	---	---	
Bobwhite.....		---	
Canada grouse.....			---
Ruffed grouse.....			
Canadian ruffed grouse.....			
Mourning dove.....			---
Marsh hawk.....			
Sharp-shinned hawk.....			
Coopers hawk.....			
Goshawk.....			---
Red-tailed hawk.....			
Red-shouldered hawk.....			
Broad-winged hawk.....		---	---
Bald eagle.....	---	---	---
Duck hawk.....	---	---	---
American sparrow hawk.....			---
Pigeon hawk.....			---
American osprey.....		---	---
Barn owl.....	---	---	
American long-eared owl.....			---
Short-eared owl.....	---	---	
Barred owl.....			
Saw-whet owl.....	---	---	---
Screech owl.....			
Great horned owl.....			
Yellow-billed cuckoo.....			---
Black-billed cuckoo.....			---

	CAROLINIAN	ALLEGHANIAN	CANADIAN
Belted kingfisher.....			
Hairy woodpecker.....			
Downy woodpecker.....			
Arctic three-toed woodpecker.....			
American three-toed woodpecker.....			
Yellow-bellied sapsucker.....		- - -	
Northern pileated woodpecker.....		- - -	
Red-headed woodpecker.....	- - -	- - -	- - -
Red-bellied woodpecker.....	- - -	- - -	
Northern flicker.....			
Whip-poor-will.....	- - -	- - -	- - -
Nighthawk.....		- - -	
Chimney swift.....			
Ruby-throated hummingbird.....			
Kingbird.....			
Crested flycatcher.....			
Phoebe.....			
Olive-sided flycatcher.....		-	
Wood pewee.....			
Yellow-bellied flycatcher.....		- - -	
Green-crested flycatcher.....	- - -	- - -	
Alder flycatcher.....	- - -		
Least flycatcher.....			
Prairie horned lark.....	-		
Blue jay.....			
Canada jay.....			
Northern raven.....			
American crow.....			
Fish crow.....	- - -		
Bobolink.....			
Cowbird.....			

	CAROLINIAN	ALLEGHANIAN	CANADIAN
Red-winged blackbird.....			
Meadowlark.....			--
Orchard oriole.....		-	
Baltimore oriole.....			-
Rusty blackbird.....			-
Purple grackle.....		--	
Bronzed grackle.....			
Purple finch.....			
American crossbill.....	- -	-	
White-winged crossbill.....			
American goldfinch.....			
Pine siskin.....	- -		
Vesper sparrow.....			
Savanna sparrow.....			
Grasshopper sparrow.....		- -	
Henslow sparrow.....	- -	- -	
Sharp-tailed sparrow.....		-	
Seaside sparrow.....		-	
White-throated sparrow.....		-	
Chipping sparrow.....			
Field sparrow.....			
Junco.....		- -	
Song sparrow.....			
Swamp sparrow.....			
Lincoln sparrow.....			
Towhee.....			
Cardinal.....			
Rose-breasted grosbeak.....			
Indigo bunting.....			
Scarlet tanager.....			
Purple martin.....			- -

	CAROLINIAN	ALLEGHANIAN	CANADIAN
Cliff swallow.....			
Barn swallow.....			
Tree swallow.....			
Bank swallow.....			
Rough-winged swallow.....			
Cedar waxwing.....			
Migrant shrike.....			
Red-eyed vireo.....			
Warbling vireo.....			
Yellow-throated vireo.....			
Blue-headed vireo.....			
White-eyed vireo.....			
Black and white warbler.....			
Worm-eating warbler.....			
Blue-winged warbler.....			
Brewster warbler.....			
Lawrence warbler.....			
Golden-winged warbler.....			
Nashville warbler.....			
Tennessee warbler.....			
Northern parula warbler.....			
Yellow warbler.....			
Black-throated blue warbler.....			
Myrtle warbler.....			
Magnolia warbler.....			
Cerulean warbler.....			
Chestnut-sided warbler.....			
Blackpoll warbler.....			
Blackburnian warbler.....			
Black-throated green warbler.....			
Pine warbler.....			
Prairie warbler.....			

	CAROLINIAN	ALLEGHANIAN	CANADIAN
Ovenbird.....			
Water-thrush.....		—	
Louisiana water-thrush.....	—	—	
Kentucky warbler.....	—	—	
Mourning warbler.....		—	
Northern yellow-throat.....			
Yellow-breasted chat.....		—	
Hooded warbler.....		—	
Canada warbler.....		—	
Redstart:.....			
Mockingbird.....	—		
Catbird.....			
Brown thrasher.....			
Carolina wren.....	—	—	
House wren.....			
Winter wren.....		—	
Short-billed marsh wren.....	—	—	
Long-billed marsh wren.....			
Brown creeper.....		—	
White-breasted nuthatch.....			
Red-breasted nuthatch.....		—	
Tufted titmouse.....	—		
Chickadee.....			
Hudsonian chickadee.....			
Golden-crowned kinglet.....			
Ruby-crowned kinglet.....			
Blue-gray gnatcatcher.....	—		
Wood thrush.....		—	
Wilson thrush.....			
Bicknell thrush.....			
Olive-backed thrush.....			

	CAROLINIAN	ALLEGHANIAN	CANADIAN
Hermit thrush.....	-	---	=====
Robin.....	=====	=====	=====
Bluebird.....	=====	=====	=====

THE MT MARCY REGION

During the summer of 1905, beginning on the 15th of June and ending the first week of August, the author and his assistants undertook a survey of the bird life about the Ausable lakes and Mt Marcy slopes. The especial object of this study was to obtain an exhaustive list of the birds nesting in the highest portion of the Adirondack wilderness, and to estimate as nearly as possible the relative abundance of each species. The thrushes, warblers, and sparrows were mostly in full voice, and the number of pairs of breeding birds could easily be counted while passing through the woods or along the trails. The attempt was made to give a fair consideration both to the virgin forest which is very extensive in the lands of the Adirondack Forest Reserve; to the spruce swamps, sphagnum bogs and extensive slashings of the McIntyre Iron Co.; and to the clearings about Keene Valley, Elk lake, Boreas River, and John Brown's grave, as well as to the higher portions of the Boreas range, Bartlett ridge and the high peaks of the Adirondacks such as Marcy, Skylight, Haystack, Colvin and Whiteface.

In the virgin forest, birds, in general, were much less numerous than about the slashings, clearings, burnt tracts and swamps. A few species seemed to be quite generally distributed even in the dense forest. These were the Olive-backed thrush, Hermit thrush, Chickadee, Red-bellied nuthatch, Brown creeper, Winter wren, Ovenbird, Black-throated green warbler, Black-burnian warbler, Myrtle warbler, Black-throated blue warbler, Red-eyed vireo, Blue jay, Yellow-bellied sapsucker, and Canadian ruffed grouse. But even these species were more numerous near the edges of lakes or clearings, or along the borders of swamps and streams.

It was a matter of surprise to find so few hawks and owls in the woods. The owls were mostly silent, except the Barred owl, and so were overlooked, but no evidence was secured from the inhabitants, or otherwise, that any other species of owl was common in this region. The commonest hawks in order were the Broad-winged, Coopers and Red-tailed. There was some evidence of one family each of the Sharp-shinned hawk, Pigeon and Goshawk, and the eyrie of a pair of Duck hawks was found on Lower Ausable lake and a family of Sparrow hawks near John Brown's grave. The Red-shouldered hawk was not located nearer than Saranac river where one family was found in August. None of these hawks was common and we do not believe that more than six pairs of Broad-winged hawks, four pairs of Coopers hawks, and three pairs of Red-tailed hawks nested within 6 miles of Mt Marcy.

Water birds were very scarce. One family of American mergansers was reared on Elk lake and one pair of Pied-billed grebes was endeavoring to nest there. American bitterns were breeding on the same lake, but had been destroyed by reckless tourists. Herring gulls paid daily visits to Elk lake and sometimes to Upper Ausable and were evidently nesting somewhere south of these lakes. A small colony of Great blue herons was located in the marshes of Boreas pond. We learned that Wood ducks in previous seasons had nested on Boreas pond and a "Sawbill" had had a nest of 11 eggs under a tussock of grass on Elk river. This was evidently a Red-breasted merganser. Woodcock were almost unknown in Keene Valley, but families of these birds were found 3 miles below Elk lake and at Boreas pond. Spotted sandpipers with downy young were found both at Boreas pond and at Elk lake and birds of this species were seen several times in Keene Valley and the Ausable lakes.

Eagles and ospreys were not nesting in this immediate vicinity. One osprey came fishing frequently to the Upper Ausable from some point southward and we judged from the time she was absent after taking a fish, that her nest was several miles distant. One Bald eagle was seen passing over Haystack and we learned that it had bred recently on the high slopes

overlooking the Cascade lakes, but evidently was not breeding nearer than Taylor pond to the northeast of Whiteface, in 1905.

Neither species of cuckoo was found in the forest, but it was learned that they were sometimes observed in Keene Valley and in other places about the edges of the woods. Kingfishers were found on all the lakes and streams, but were decidedly uncommon on the heavily wooded waters. Woodpeckers of all species known to the State, with the exception of the Red-bellied woodpecker, were unquestionably breeding within 15 miles of Mt Marcy. The Red-headed woodpecker was not found nearer than 3 miles below Elk lake, and the Flicker is confined to clearings and slashings. The Hairy woodpecker was decidedly more common than the Downy, and next to the Yellow-bellied sapsucker, was probably the commonest woodpecker in the forests. Sapsuckers were abundant and invariably awoke us at dawn by their loud and continuous drumming. Many of their nests containing young were found in beech and birch stubs, usually about 25 feet from the ground, and almost without exception, under cover of the dense woods. The Black-backed three-toed woodpecker was fairly common and was found both in the spruce swamps about the lakes and on the wooded ridges to an altitude of 3900 feet. The American three-toed woodpecker was nearly as common as the Black-backed species, but only two families of young were found, one of these being on the slope of Mt Marcy at an altitude of 4000 feet. Pileated woodpeckers were not seen by any of our party but were heard on three occasions, and we learned on good authority, that they were breeding near St Huberts and at Boreas pond.

Chimney swifts were common about clearings and old lumber camps, their nests being fastened to the boards in the gable ends of the deserted shacks. Hummingbirds were frequently noticed, both in the dense woods, and the second growth about the lumber camps. Nighthawks were breeding at Boreas pond and Elk lake, but whip-poor-wills were not living nearer than the road from Elizabethtown to Placid.

Kingbirds were observed at Elizabethtown, Keene Valley, Elk lake and Boreas pond; Crested flycatchers, at Elizabethtown and North River.

Phoebes were confined to the outskirts of the district in the more inhabited localities, but Wood pewees were found about the old lumber camps and slashings to an altitude of 3500 feet within 5 miles of the summit of Mt Marcy. Least flycatchers lived in many of the burnt tracts and clearings which had grown up to poplars, one pair being found on the slopes of Mt Colvin above the Lower Ausable lake and several pairs about Elk lake. Alder flycatchers inhabit the swamps at the head of the Upper Ausable and about Elk lake and Boreas pond, being next to the Olive-sided flycatcher the most conspicuous member of the family. The latter species was fairly common in all the swamps and in many of the slashings to an altitude of 3800 feet. Yellow-bellied flycatchers were confined mostly to the cool, mossy slopes, like those of Indian head and Geological cobble, Marcy and Haystack, where we found them nesting in July. During our second visit to Elk lake on July 23d, several of this species were also seen and heard in different localities about the lake. It is probable that both this species and the Alder flycatcher were actually as common as the Olive-sided, but were more often overlooked as usually it was necessary to be within 20 rods of them before they were discovered, while the Olive-sided flycatcher could often be seen and heard at a distance of several hundred yards whenever we came in its vicinity. A brood of Prairie horned larks, just able to fly, was seen at Elizabethtown but none at Elk lake or at Boreas pond clearing, although it is probable that this bird nests generally about the edges of the wilderness wherever there is grass land of sufficient extent. The Blue jay was one of the most generally distributed birds of the region, being conspicuous everywhere, both about the clearings and in the depths of the forest to an altitude of 4000 feet. The Canada jay was confined mostly to the dense swamps about the head of the Upper Ausable, Elk lake and Boreas ponds, but was seen on the summit of Bartlett ridge, July 3d. Crows were uncommon at this season, except about the larger clearings, and none were seen nearer than Keene Valley, Clear pond, and the Flowed land. No ravens inhabited the region. We were told by Mr Scott Brown, Superintendent of the Forest Reserve, that they were found

only in late fall and winter and he had seen only two within 15 years. Bobolinks bred in the meadows of Keene Valley and Boreas camp. Red-winged blackbirds bred sparingly at Keene Valley, Elk lake, Clear pond and Boreas pond. Bronzed grackles were nesting at Elk lake and Boreas camp, but were by no means common. We failed to find meadowlarks, cowbirds or orioles within 15 miles of Marcy, but Baltimore orioles were living at Ausable Forks, and both Baltimore and Orchard orioles were observed on the road from Boreas River to Port Henry.

The family Fringillidae was represented in the woods by the Purple finch, Pine siskin, White-throated sparrow, Junco, and Rose-breasted grosbeak; the Junco and White-throat being among the commonest birds of the region. The Purple finch was fairly common about the swamps and streams. Several large flocks of Pine siskins containing immature birds were seen from June 17th to July 5th, both at Beede, the Upper Ausable and Boreas pond. Mr Cox of the Boreas camp informed us that they had been there through the winter and spring and had nested very early in the season, as was proven by several specimens taken on June 17th which, though feeding themselves, were in immature plumage. The Rose-breasted grosbeak was seen on three occasions in the vicinity of the Upper Ausable and Elk lake, and on July 22d a pair with young was found on the Elk lake trail at an altitude of 2200 feet. Swamp sparrows were common at Elk lake and Upper Ausable inlet and the Flowed land. Song sparrows were common about all the clearings and one pair was found at the head of the Upper Ausable and another on the Stillwater above the Upper Ausable. Field sparrows were found at Beede and along the Elk lake road. American goldfinches, Vesper sparrows, Savanna sparrows and Chipping sparrows were breeding about all the clearings visited. One Indigo bird was seen at the entrance to Keene Valley. The English sparrow was common at Elizabethtown and Beede, but had not yet reached Elk lake and Boreas pond. One flock of crossbills was seen on the Upper Ausable, and as Dr Merriam and Dr Ralph have found them breeding in the western Adirondacks, they probably breed also in the vicinity of Mt Marcy. Mr Richard

of the State Museum observed a Chewink, on July 5th, along the road from Boreas River to Port Henry and we were informed that they were sometimes seen at Elk lake clearing. A Lincoln sparrow was observed in the Upper Ausable swamp by Mr Taylor, but on account of its extreme shyness, the specimen could not be secured. The Junco and White-throated sparrow were common all the way from Elizabethtown to the summit of Mt Marcy and were singing throughout our stay of six weeks. These two species together with the Myrtle and Blackpoll warblers were conspicuous near the summit of all the mountains visited, particularly Skylight, Marcy, Haystack and Whiteface, but the juncos were by far the commonest on the extreme summits where they frequently gathered to feed upon the remnants of lunches left by tourists.

The Scarlet tanager was fairly common at Beede, and on the Elk lake trail at an altitude of 2500 feet a pair with young was discovered on July 6th. Cliff swallows were common about all the clearings, and breeding colonies were noted at Westport, Spruce hill, Keene Valley, Boreas camp, Elk lake and Proctors. On July 14th, while our party was on the summit of Skylight, a single Cliff swallow was seen flying over the summit, but no nests were discovered about the rocky ledges. Barn swallows were common in all the clearings and often were found nesting over the cabin doors. Tree swallows were noticed in several localities and were breeding commonly at Elk lake and Boreas pond. Small colonies of Bank swallows were found at Beede and Boreas pond. Mr Richard found them common at Port Henry and Boreas River and also noticed a pair of Rough-winged swallows at the latter place, altitude 1700 feet. The Cedar waxwing was common along the swamps and streams.

Only two species of Vireo were found within 10 miles of Mt Marcy. The Red-eyed species was common throughout the woods to an altitude of 3300 feet. Blue-headed vireos were found nesting in the Ausable swamp and on the Marcy trail at an altitude of 2200 feet. Although no Warbling vireos were met with, Mr C. F. Batchelder says that they are found about the streets of Elizabethtown. The Yellow-throated vireo was found at

Middle Saranac lake and Pollywog pond, and one was heard singing on the shore of Lake Placid. A family of Migrant shrikes was found near Long Lake and I notice an instance of its breeding in Essex county, on the Ausable river, recorded by Dr Merriam.

Seventeen species of wood warblers were found nesting in the region, but neither the Tennessee warbler which was found by Roosevelt and Minot in Franklin county, and by Merriam in the western Adirondacks, nor a single specimen of the Bay-breasted, Cape May or Wilson warbler, which we had hoped to secure, could be found. The Black-throated green, Black-throated blue, Myrtle, and Magnolia warblers, as well as the Ovenbird, were common and generally distributed. Slightly less common and less generally distributed were the Blackburnian, Canadian, Chestnut-sided, Mourning, and Black and White warblers and Redstart. Common in the swamps were the Water-thrush and Northern yellow-throat up to an altitude of 2750 feet. The Mourning warbler was commonest in the burnt tracts which were grown over with a tangle of weeds and bushes. Chestnut-sided and Canadian warblers seemed to prefer the slashings up to an altitude of 3000 feet. Nests of the Black and White warbler were found by Mr Achilles at Elk lake and we noted old birds feeding their young near the top of Indian head. The Blackpoll warbler was found nesting near the summit of Indian head by Mr Bradstreet and old birds were observed carrying food to their young on the Geological cobble, Bartlett ridge, Marcy trail 2500 feet, Colden trail, Elk lake road 2000 feet, and also near the summit of Skylight, Marcy, Haystack and Whiteface. The Parula warbler was found in full song at Boreas pond, Elk lake and the Upper Ausable, but the nest was not located. The Yellow warbler was seen only at Beede's near the head of Keene Valley.

The Catbird was found nesting at St Huberts and Boreas camp. The Brown thrasher was said to occur at Elk lake, but we saw no specimens. One family of House wrens was located at Elizabethtown. The Winter wren was generally distributed in the woods, and broods of young were frequently seen to an altitude of 3900 feet. The Brown creeper was about

as common as the Winter wren and broods of young were found at an altitude of 3500 feet. The Red-bellied nuthatch was abundant throughout the region. The White-bellied nuthatch was not found in Essex county, but was observed by Messrs Fuller and Taylor near Saranac Inn and Racquet lake. The Chickadee was common to an altitude of 3600 feet. Families of Hudsonian chickadees with young recently from the nest were found in the Upper Ausable swamp and near Skylight camp. The Golden-crowned kinglet was common from an altitude of 2000 to 4000 feet. A single Ruby-crowned kinglet was seen on the slope of Mt Marcy at an altitude of 4000 feet.

All species of the Thrush family, known to breed in the State, were found within 7 miles of Mt Marcy. Several pairs of Wood thrushes were breeding in the woods at the foot of the Upper Ausable lake, altitude 2000 feet, and two of their nests were found. The Wilson thrush was fairly common at St Huberts and Elk lake, and Mr Richard found them all the way from North Creek to Boreas River, but they were certainly not to be found in the woods about the Ausable lakes, or on any of the mountain slopes we visited which were above 2000 feet. In these localities they were replaced by the Bicknell thrush, which was found on the Geological cobble, altitude 3300 feet, on the Bartlett ridge, and along the Marcy trail, altitude 3100 feet, and along the Colden trail from Mt Marcy. Near Skylight camp at the foot of the Marcy slide a pair with young was found on July 12th. From the summit of Marcy at twilight several were heard singing in the scrubby spruce near the timber line. At Lake Colden, altitude 2750 feet, several males were singing about our camp on the morning of July 18th, and one male was taken. Both the Olive-backed and the Hermit thrushes were common and nesting to an altitude of 4300 feet. The Robin was fairly common, even in the forests about the Upper Ausable, and a few were noted at an altitude of 4000 feet. Bluebirds were nesting in Keene Valley, Clear pond, Proctors, and Boreas camp and a single specimen was heard as it flew over Skylight camp on July 12th.

It was evident from the search which we were able to make, that at least 100 species of birds were nesting within 10 miles of Mt Marcy. With the addition of those species which were seen on one or two occasions and those of which we learned from reliable sources, the number is raised to 117, and I have no doubt that this represents about the actual number of species nesting in that region. Of the 100 species which we found nesting, 32 are commonly regarded as belonging to the Canadian fauna, and the remainder are species of general distribution in eastern North America, or of the Alleghanian fauna. The typical Alleghanian species enter the valleys and clearings as far as St Huberts, Elk lake, and Boreas camp. No Carolinian species was found within 10 miles of Marcy, and no Hudsonian species unless the Bicknell thrush, Ruby-crowned kinglet and Hudsonian chickadee be regarded as belonging to that fauna.

INCREASE AND DECREASE OF SPECIES

It is the general testimony of authors that there has been a marked diminution in the bird life of our State during the past century, and there can be no doubt that this is true of the waterfowl, shore birds, and, in general, of the larger species. At the same time, since our wild birds are the property of the State and form a valuable public asset, it seems advisable to consider briefly the facts regarding their variation in abundance, and the causes which affect bird life in general.

When the State was first settled, waterfowl fairly swarmed on our bays, rivers and lakes, and shore birds flocked by thousands every spring and fall along Long Island and on the inland lakes. Wild turkeys, Ruffed grouse, and Bobwhites were well distributed, although the turkey and "quail" were never common in the northern districts. The larger hawks and owls were abundant throughout the State, while herons and other marsh birds occupied the swampy lakes and rivers. It is difficult to obtain reliable information in regard to the abundance of small birds, like the warblers, flycatchers, sparrows and thrushes, but the writer believes they were less abundant during colonial times than they are at present. This may

not be true of the Red-winged blackbird, Crow blackbird, the woodpeckers and many others, but the accounts given by early writers of the tremendous multitudes of "maize thieves," as the blackbirds were called, create a greater impression because the birds were concentrated about the few plantations, whereas now they are scattered over thousands of square miles which formerly were covered with forests.

The general law of variation in abundance seems to be as follows. Birds which prefer the open country begin to increase as the forests are cut off, and many which live in the forests themselves increase as long as the clearings are few and scattered. As the cultivation of the country progresses and a large percentage of the forests has been cut off, the hawks, owls, grouse, jays, Pileated and Hairy woodpeckers, tanagers and many wood-warblers and thrushes decrease in number. When the swamps are drained there are fewer nesting places for snipe, rails, bitterns and Marsh wrens. As the pasture and meadow lands increase in area, birds like the Bobolink, Meadowlark, Vesper sparrow, Killdeer and Bartramian sandpiper find favorable nesting places and increase.

But as the modern style of agriculture develops, new dangers arise to threaten the field birds. Late plowing and extensive cultivating and early mowing destroy great numbers of eggs and young birds. A high stage of agriculture is likewise accompanied with danger from the spraying of fruit trees and potato plants, as birds are often killed by eating caterpillars which have been poisoned. The cutting of all dead limbs and trees also destroys the nesting sites of flickers, Downy and Red-headed woodpeckers, chickadees, wrens and bluebirds. On many well kept farms, also, the barns are so tightly closed that swallows are unable to gain entrance. Thus in many ways the increase of native birds is discouraged, unless artificial means is taken to counteract the evil by such methods as erecting boxes and woodpecker stubs, cutting swallow-holes in the barn, cultivating and plowing around the nests, and watching out for the young birds when mowing.

In thickly settled districts the danger to many species is further increased by the abundance of telegraph and telephone wires, electric lights, plate-

glass windows, cats and thoughtless boys. Especially during the migration season many birds are killed in every city and village by flying against the plate glass where they see a reflection of the landscape. Thousands are also killed, or hopelessly maimed, by flying against wires which are strung along the streets and railroads; these wires being at the same height as the ordinary flight of the Woodcock, Pheasant and many others, form deadly obstacles against which they break their necks. I have known many instances of such birds falling victims to the telegraph wire and the same is true of ducks and many of our smaller birds. I have also known of upward of a dozen small birds being killed in a single month by flying against the wire netting which formed the back-stop of a tennis court. In the case of wire and plate-glass victims, it is only a very small percentage which are noticed, but from the number which have come under my personal observation, it is easy to believe that many thousands are thus sacrificed annually in our State. If the disagreeable truth must be told, it is certain also that tens of thousands of birds yearly fall victims in our State to the domestic cat, while dogs kill a comparatively small number.

Along the coast many birds fly against lighthouses and towers while they are migrating at night. Sometimes several hundred birds are picked up in a single morning by the keepers. While migrating on the night of May 7th, 1905, a bushel basket full of warblers, sparrows, vireos and wrens consisting of 17 different species were killed by striking the Washington Monument. During the night of September 23, 1887, 356 Blackpoll warblers, among others, were killed by the Fire Island Light, on Long Island. On December 3d, 1888, 40 Scaup ducks were killed against the Montauk Light Tower; on December 17, 1890, 24; and on November 15, 1890, 13 struck. Against the Fire Island Light 59 of these ducks were killed on January 6th, 1888; on the 12th, 27; and on February 25th, 1894, 40 struck [see, Dutcher, Water Birds, ms no. 148]. Accounts of smaller numbers striking Long Island lighthouses, both of Scaup ducks and many other species of birds, are scattered through Mr Dutcher's Long Island Notes.

In addition to all these dangers to bird life we must add the direct agency of man in destroying birds and taking their eggs, both for food, scientific specimens, and for so called sport or idle curiosity. Perhaps the most destructive class are the thoughtless boys who go birds' egging and shooting indiscriminately; also foreigners, mostly Italians, who often kill all kinds of birds for food, as they have been accustomed to do in their native country; and the pot hunters and market gunners, who exterminate our game without mercy. It is also a common occurrence in all parts of the State to see gunners, who call themselves sportsmen, shooting at swifts, swallows, meadowlarks, kingbirds etc. merely "for fun," or "for practice." Mr Fuertes and myself once picked up 18 swallows which had been killed by a gunner who was returning home, disappointed, from a morning's duck shooting, and this was only a small portion of the number which he had shot as they were hovering over the reeds of the Cayuga marshes. Bitterns, grebes, owls and herons are killed by many gunners at every opportunity. It is probable that such acts are largely the result of thoughtlessness or ignorance, and it is to be hoped that by spreading a knowledge of our native birds, thereby arousing a pride and interest in their welfare, we may overcome a large portion of this wanton destructiveness.

We have not yet mentioned the dangers to which birds are subjected in the due course of nature without the interference of man. The most obvious of these arises from the attacks of predaceous animals. Gyrfalcons, Duck hawks, goshawks, Snowy and Great horned owls are destructive to ducks, grouse and other large birds. Pigeon, Cooper and Sharp-shinned hawks feed mostly upon sparrows, thrushes and other small birds. All the species of hawks and owls occasionally kill other birds, as is also true of shrikes, crows, jays and Crow blackbirds. The three last mentioned are especially destructive to eggs and young birds. I have known many instances of crows carrying away robins and other young birds when nearly ready to leave the nest and have seen Crow blackbirds follow and kill young robins which were able to fly several rods. I once saw a Bittern followed so hotly by a troop of redwings that she dropped the young bird

which she was carrying away to her nest, and on examining the victim I found it was a Red-winged blackbird fully fledged which the Bittern had speared through the side with her daggerlike beak. There is little doubt that the callow young of our perching birds are devoured by numerous flesh-eating species. The mortality among eggs is even greater than among the nestlings. Many species of otherwise inoffensive birds become egg-eaters during the nesting season. Blackbirds, cuckoos, catbirds and wrens invade their neighbors' nests and destroy their treasures. Crows and jays are probably the worst destroyers of eggs and nestlings and I have seen the Crow on so many occasions in this nefarious business that I doubt if I could ever consent to regard him as a reputable citizen. The Cowbird is fully as noisome a pestilence from the standpoint of bird protection, for every young Cowbird is reared at the expense of a whole brood of vireos, warblers, finches or some other song bird.

Among the fourfooted enemies, next after the cat, I should place the red squirrel. One summer while sojourning at a lakeside camp I saw a pair of red squirrels succeed in destroying every robin's, flicker's, vireo's and warbler's nest in the grove. Three pairs of robins in the vicinity of our camp had failed to raise any young up to the middle of August, when I witnessed the destruction of the last nest. The poor birds had evidently decided to try their fate high on the limb of an elm tree which stood in front of our cabin. One day I heard their battle cry and came upon the scene just in time to see the squirrel dislodged by the robin's fierce attack and fall a distance of 50 feet to the ground, but this did not discourage him sufficiently, for later in the day I saw him make a sudden dash up the limb and seize an egg in his mouth but drop it suddenly as if afraid of another attack. A pair of flickers had built their nest in a stump near the camp and the young were apparently nearly half grown before the squirrels discovered them, but the peculiar notes of the young birds attracted their attention and the squirrels after investigating the hole killed the young birds one by one, the last victim being so large that the squirrel could scarcely drag it from the nest, but he succeeded

and let it drop to the ground with a deep gash bit through the base of its skull.

Weasels are also a dangerous foe to birds. This fierce little pirate destroys a large number of those species which nest or roost upon the ground. Sometimes he attacks birds of large size. On one occasion I saw in the snow the marks of a desperate struggle which had taken place between a weasel and a cock grouse. The weasel had sprung upon him as he was sleeping on the hillside, and they had rolled and struggled down the hill together until the grouse, owing to the favoring slope, finally shook off his assailant by his powerful wing-strokes and left a large mouthful of hackle feathers in the snow as the price of liberty. Minks, martens and skunks are natural enemies to the birds, but are not as destructive as the weasel, unless we except the marten which is largely arboreal in habits and consequently wrecks many a dainty household which escapes terrestrial enemies.

Among our native reptiles the black snake is undoubtedly a dreaded enemy to birds, for it attacks their nests both in trees and on the ground; and the snapping turtle is destructive to ducklings, young rails, coots and bitterns. Like the snapping turtle some fishes, notably the pike, pickerel and bowfin often rise from the grassy shallows and drag down the young of ducks and marsh birds and even capture the agile Marsh wren as it trips along the grasses at the surface of the water. My friend, Mr Foster Parker, of Cayuga, informs me that Marsh wrens have decreased remarkably along the marshes of Seneca river since the bowfin, or "dog-fish," became abundant in those waters.

We must not forget the parasites, both external and internal, which prey upon birds and often destroy their life directly, especially young birds in the nest. I have noticed many instances in which phoebes, swallows, goldfinches and woodpeckers lost all or a part of their young through the attacks of lice which swarmed about their nests. Every species of bird has a louse which specially afflicts it. Ticks often fasten themselves on the heads of young grouse and gradually absorb their life. Many birds, like the Meadowlark, are the hosts of tapeworms and other abdominal parasites.

Wood ducks and other species of waterfowl are often found to have the muscles studded with the cysts of threadworms or tapeworms. While parasites may not kill fullgrown birds directly they often diminish their vitality to such an extent that they fall an easy prey to carnivorous animals or unfavorable weather conditions.

Of all the dangers which befall the feathered tribe, however, it is doubtless true that unfavorable conditions of weather, whether of wind or flood or snow or drought, destroy more birds directly than any of the agencies already mentioned. During migration time they are subject to the greatest mortality and are often driven to sea by storms and perish in the waves. At times of fog or heavy rain or tempest, they fly against lighthouses, wires and other objects. They even pitch headlong into lakes and rivers as they descend toward the earth during fogs and storms, failing to distinguish the surface of the water as they approach it, and their water-soaked plumage renders them unable to rise again. Mr William Brewster has observed such catastrophes on the lakes of Maine, and several accounts have come to my notice of the wholesale destruction of small birds in Oneida lake and other bodies of water in our own State. Dr T. S. Roberts has given an authentic account¹ of the tremendous catastrophe which befell the migrating longspurs in Minnesota during March 1905, when millions of these birds were killed by flying against trees, buildings, and the ice of lakes which they were unable to see on account of the heavy snow-storm which overtook them in their flight.

During long-continued rainy weather as well as heavy rainstorms there is high mortality among young birds and sometimes the old birds themselves are killed. Martins and swallows are often found dead about the barns and boxes which they inhabit after a continued cold rain in April or May. Five hummingbirds were brought to me on the 31st of May 1881, having been killed the previous day by a snowstorm which whitened the ground for a few hours of the morning. These of course were an insignificant percentage of the number which were thus killed in that vicinity.

¹Auk, 24: 369-77.

Many accounts have been published of the wholesale destruction of English sparrows and other birds by heavy rains, when large basketfuls of these birds are sometimes gathered under the trees of city parks after the storm is past. It is a noticeable fact that cold or wet weather for two or three weeks when grouse chicks are young will leave the coverts with scanty coveys of birds when the shooting season begins, and similar principles apply to almost all our native birds.

During the months of June and July 1906, the rails, gallinules, bitterns, Swamp sparrows, Red-winged blackbirds and Marsh wrens were twice driven from their nests and their eggs destroyed by the high water which prevailed in the marshes of Ontario county as a result of the abundant rainfall. During the same season a great calamity befell the birds of Ontario county from a hailstorm which visited that locality killing both old and young birds or breaking up their nests. In the neighboring county of Yates, Messrs Burtch and Stone found many nests destroyed and noticed a Wilson thrush which had been killed while incubating her eggs. The calamity as represented by farmers in some parts of the county was undoubtedly overestimated, but I am satisfied that about 20 per cent of the nests were destroyed in a belt of country 16 miles in length by 4 in width.

It is now well known to sportsmen that bobwhites are winter killed by deep snows or continued sleet storms, as then they are unable to get the necessary food. The Bluebird was nearly extirpated in many districts by the cold wave and sleet storms of 1895 which swept over the eastern United States. For several years thereafter this bird was very scarce in most portions of the northeastern states, and only recovered its former numbers in 1901.

SUGGESTIONS TO BIRD STUDENTS

There are numberless good books on the birds of eastern North America, many of them profusely illustrated. The author has been asked many times to name the best book for the bird student. This task is too difficult, for the requirements of bird students are as varied as the number of books.

The book is not of so much importance as the attitude of the student. The author learned more from an old thumb worn, imperfect copy of "Ornithology," evidently compiled from the works of early writers, principally Wilson, than he has from any exhaustive treatises of recent publication. He knew the colored plates of DeKay's *Birds of New York* so well that the species therein depicted were recognized at the first meeting in the field. Many beginners, however, will find it convenient to carry a pocket handbook for reference on their field excursions. In preparing the present volume we have avoided exhaustive synopses and keys, having found by experience that most students pay little attention to them. We would direct all students in using this volume to study carefully the plates which have been arranged as far as possible to give a clear idea of the relative size and characteristics of related species. These, in connection with the descriptive text, should give a clear idea of the different orders, families and species of our avifauna. We believe that all beginners should learn as soon as possible to recognize the relationship of the birds which they wish to identify, rather than to rely entirely on size and color, as is too often the case; that is, when wishing to identify a duck, one can determine the species more quickly by glancing at plates of ducks, than by running through a lengthy key; and to identify successfully a small bird it is of far greater importance to note from its general structure and personality whether it is a sparrow or a warbler, as the case may be, than to fix the attention too exclusively on its colors. All students should become familiar with the characters of orders and families as soon as possible. In the descriptions, the beginner is directed particularly to certain parts which are printed in italics to give definite "earmarks" for identification.

Every bird student should keep a notebook, or better, two notebooks, one for use in the field, and one a journal with removable leaves, or a card system, in which a record of each species is kept in chronological order, and each species in its proper order according to the prevalent classification. Thus it will be possible to turn at once to any migration or breeding date, or observations on the life history of any species in any given year. The

following sheet from such a notebook will illustrate the plan advised, but of course in common species, like the Migrant shrike and Bluebird, the notes will be much more extensive and varied.

CAPE MAY WARBLER DENDROICA TIGRINA

1902

Rochester, N. Y., May 7. One reported seen.

do. May 12. Saw a fine male, the first I ever studied through a glass. He was low down among the bushes and brush in the farther corner of Cobb's hill, restlessly searching for insects. Could make out with perfect distinctness the reddish ear spot and large yellow patch behind it, the black crown, the large white patches in the wings and outer tail feathers, and the yellow under parts streaked with black.

1903

Rochester, N. Y., May 10. Found one male in Mt Hope.

do. May 12. Male on Cobb's hill.

1904

Charlotte, N. Y., May 8. In Greenleaf woods saw the only ♂ noted near Rochester this year.

1905

Rochester, N. Y., May 4. ♂ reported seen on Cobb's hill.

do. May 14. Saw ♂ in company with Bay-breasts in the oak tops on the Pinnacle.

1906

Springville, N. Y., May 12. Saw a fine ♂ on the east edge of Clark's woods in company with a Palm warbler and many others of several different species; they were all feeding restlessly in the maple tops and moving rapidly from tree to tree toward the north along the ridge. A beautiful warm May day, the wind strong, southwesterly.

Rochester, N. Y., May 13. ♂ seen in Mt Hope.

1907

Rochester, N. Y., May 14. Saw a ♂ on Cobb's hill.

do. May 16. Saw two ♂ and one ♀ on Cobb's hill.

do. May 17. ♀ on Cobb's hill in the tops of the tall chestnut trees. Added her to my collection, thereby verifying to a doubting friend the possibility of distinguishing with a glass the ♀ Cape May in the tree tops.

Rochester, N. Y., May 18. Three ♂ and two ♀ seen on Cobb's hill before breakfast.

Rochester, N. Y., May 24. ♀ feeding in the white oaks on the Pinnacle.
do. May 30. Two ♀ on Cobb's hill in the chestnuts and white oaks.

Forest Lawn, N. Y., May 30. ♀ feeding in the maples back of Mr Perkins's cottage.

Several other specimens, or the same ones above mentioned, were reported from Rochester as seen by different friends. This year has been unprecedented for the numbers of this species in this vicinity.

It is absolutely essential that some record of observations be kept. Migration dates, the relative abundance of different species, mating, nest building, first eggs seen, period of incubation, length of time young remain in nest, kind and amount of food brought to young, destruction of nests, special enemies, second broods, beginning and end of song period, time of day the song is heard, description of song and call notes, and many other valuable bits of life history would thus be gathered into such an adjustable notebook and in such order as to be of the greatest satisfaction to the owner as well as to any ornithologist seeking information on the birds of the locality.

The need of such records on the number of birds of each species which may be seen in a given locality is well illustrated by the answers given by 12 bird enthusiasts in Monroe county when asked to mark 50 of our commonest land birds as to their relative abundance, on a basis of counting the English sparrow 10. Estimates of the Bluebird's abundance varied from 1-9. Of the Chickadee from $\frac{1}{2}$ -6, of the Crow from 2-10, Phoebe from 1-7, Chimney swift, $1\frac{1}{2}$ -8, Flicker, $\frac{1}{2}$ -7, Barn swallow, $\frac{1}{2}$ -8, Least flycatcher, $\frac{1}{5}$ -6, Song sparrow, 5-10, while the estimates on the other 40 show equal discrepancies. This shows that general impressions are of little value from the standpoint of exact science, and that records of well determined facts form the only safe basis of judgment.

Many bird lovers wish to know how many species of birds it is possible to see in one day, or in an entire season. This depends of course on the

proficiency of the observer in recognizing birds at a glance, and his knowledge of their proper haunts and the time of their appearance, as well as his energy in the search and the amount of time at his disposal. After carefully reviewing the list of New York birds, I am convinced that any one well acquainted with the different species, who is willing to devote one day each week to field work, through the year, and four half days each week in April and May, can surely see a list of 114 species of land birds and about 50 water birds, with a possible additional list of 40 or 50 land birds and 15 or 20 water birds. This assumes of course that he is so situated that he can visit the proper haunts of the water birds as well as the forest-loving species.

The largest daily lists are made along the slopes of river valleys, and near the coast or the lake shores where there is a convergence of migration routes.

An excellent way of recording the migrations, or of taking a bird census, is to form an association of workers who can divide the country between them each day, and meet at intervals to compare and record their observations. This method has been employed with success by the Bird Section of the Rochester Academy of Science in studying the spring migrations of 1902 to 1907, and by the Department of Vertebrate Zoology of Cornell University in 1905 and 1906. The result has been the assembling of exceptionally full and accurate migration dates for those stations [*see* Monroe county and Tompkins county, tables of migration]. Of great value, also, are the data of individual observers, who have recorded the migrations at the same station through a series of years, as has been done by Dr Merriam at Locust Grove, Dr Fisher at Ossining, and Dr Mearns at Highland Falls.

It is possible for a single observer to record as many as 100, or even 130 different species of birds in one day, provided his energy is unlimited, and he has made a careful preliminary survey of the ground, and there is means of rapid conveyance between forest and copse, meadow and stream, swamp and lake. But to do this, one must be familiar with their haunts and know all the birds so well that they can be recognized at long distance,

while such birds as the Sora, Gallinule, Bittern, Whip-poor-will and Screech owl may be recorded as heard only. Such a day will probably begin at peep of dawn in the familiar coverts near home; then with a hope born of promised success the hunt develops with wild enthusiasm through the forenoon; continues toward sunset with a grim determination; and ends at dusk in utter weariness. This method of observation will hardly commend itself to the ordinary bird student, and certainly lacks the poise which appeals to the sympathetic student of nature. A list of 40 or 50 species during migration time is a good morning's work.

The following lists represent the longest which have been received from New York observers:

OBSERVED BY E. H. EATON, AT ROCHESTER, N. Y.

May 4, 1905. Cobb's hill, Pinnacle, and Greenleaf woods. Cool and damp in the morning. East wind, but mostly clear and warmer in the afternoon.

Pied-billed grebe 1	Alder flycatcher 1	Towhee 4
Loon 1	Least flycatcher 1	Rose-breasted grosbeak 1 ♂
Herring gull 20	Prairie horned lark 1	Scarlet tanager 1 ♂
Ring-billed gull 2	Crow 10	Barn swallow 5
Bonaparte gull 2	Cowbird 8	Bank swallow 10
Red-breasted merganser 20	Red-winged blackbird 6	Tree swallow 2
Spotted sandpiper 2	Meadowlark 3	Rough-winged swallow 2
Mourning dove 3	Baltimore oriole 5	Cedar waxwing 8
Sharp-shinned hawk 1	Bronzed grackle 12	Migrant shrike 1
Red-tailed hawk 1	Purple finch 6	Warbling vireo 2
Broad-winged hawk 1	Goldfinch 12	Yellow-throated vireo 2
Kingfisher 2	Vesper sparrow 10	Blue-headed vireo 4
Downy woodpecker 2	Savanna sparrow 3	Black and white warbler 25
Red-headed woodpecker 1	White-crowned sparrow 3	Nashville warbler 10
Sapsucker 3	White-throated sparrow 100	Parula warbler 6
Flicker 8	Chipping sparrow 25	Yellow warbler 10
Chimney swift 6	Field sparrow 6	Black-throated green warbler 15
Whip-poor-will 1 ♀	Junco 3	Black-throated blue warbler 18
Kingbird 4	Song sparrow 30	Myrtle warbler 20
Crested flycatcher 2	Swamp sparrow 3	
Phoebe 2	Lincoln sparrow 1	

Magnolia warbler 8	House wren 2	Wilson thrush 6
Chestnut-sided warbler 15	Winter wren 1	Hermit thrush 12
Blackburnian warbler 20	White-breasted nuthatch 2	Olive-backed thrush 1
Ovenbird 12	Red-breasted nuthatch 1	Robin 40
Water-thrush 3	Brown creeper 5	Bluebird 6
Northern yellow-throat 5	Chickadee 2	English sparrow 30
Redstart 6	Golden-crowned kinglet 1	Pheasant 2
Catbird 1	Ruby-crowned kinglet 15	(86 species)
Brown thrasher 4	Wood thrush 4	

BIRDS OBSERVED BETWEEN FREEVILLE AND ITHACA, N. Y., MAY 6, 1906

L. A. FUERTES, H. D. REED, A. H. WRIGHT, R. W. CURTIS

Barn swallow	House wren	Black-throated blue warbler
Purple finch	Bronzed grackle	Parula warbler
Warbling vireo	Least flycatcher	Ruffed grouse
Goldfinch	Phoebe	Blackburnian warbler
Yellow warbler	Kingbird	Wilson warbler
Robin	Spotted sandpiper	Black and white warbler
Meadowlark	Yellow-throated vireo	Hairy woodpecker
Chipping sparrow	Indigo bird	Magnolia warbler
Cowbird	Cliff swallow	Wood pewee
Oriole	Northern yellow-throat	Rose-breasted grosbeak
Horned lark	Red-tailed hawk	Blue jay
Bluebird	Solitary sandpiper	Redstart
English sparrow	Rough-winged swallow	Chickadee
Redwing	Killdeer	Grassfinch
Crow	Flicker	Kingfisher
Song sparrow	Red-eyed vireo	Myrtle warbler
Catbird	Ruby-throated hummingbird	Tennessee warbler
Scarlet tanager	Field sparrow	Green heron
Bobolink	White-breasted nuthatch	White-bellied swallow
Grasshopper sparrow	Crested flycatcher	Olive-backed thrush
Savanna sparrow	Chestnut-sided warbler	Hermit thrush
White-crowned sparrow	Ovenbird	Downy woodpecker
Black-throated green warbler	Wilson warbler	Louisiana water-thrush
Chimney swift	Canadian warbler	Philadelphia vireo
Sparrow hawk		(73 species)

In 1907 the great bird wave of early May was highly concentrated, but there was a poor showing of hawks and water birds at that time, most of them having passed on to the north, but it was possible to see a large

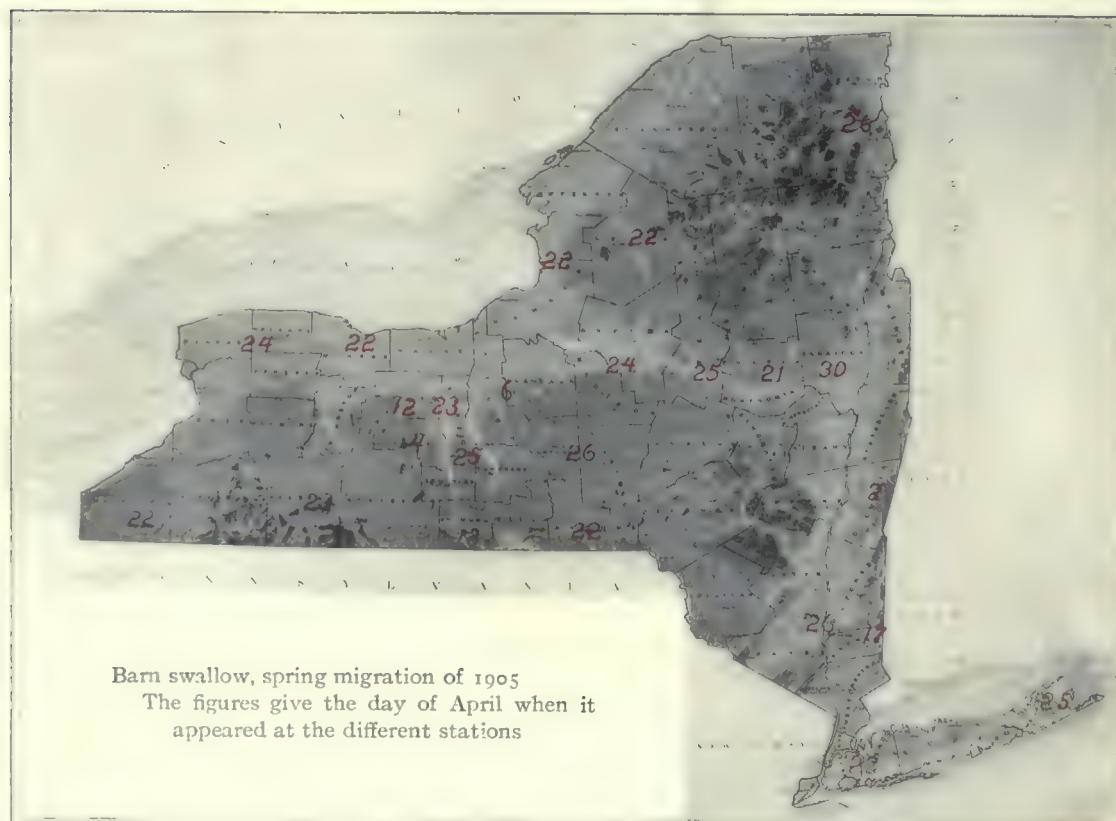
list of land birds, the warblers being specially abundant. The following list was observed May 16, 1907, at Rochester, N. Y., Cobb's hill, Float Bridge and Forest Lawn, by the author and four enthusiastic assistants.

Pied-billed grebe 2	Red-winged blackbird 25	Yellow warbler 6
Loon 1	Meadowlark 12	Black-throated blue warbler 12
American bittern 4	Baltimore oriole 19	Myrtle warbler 5
Least bittern 1	Bronzed grackle 7	Black-poll warbler 1
Virginia rail 2	Purple finch 2	Magnolia warbler 11
Carolina rail 4	American goldfinch 26	Chestnut-sided warbler 8
Florida gallinule 2	Pine siskin 150	Bay-breasted warbler 2
Spotted sandpiper 5	Vesper sparrow 15	Blackburnian warbler 3
Ring-necked pheasant 7	Savanna sparrow 1	Black-throated green warbler 8
Mourning dove 2	English sparrow 75	Ovenbird 8
Broad-winged hawk 1	White-throated sparrow 50	Water-thrush 1
Sharp-shinned hawk 1	White-crowned sparrow 2	Mourning warbler 1
Marsh hawk 1	Chipping sparrow 35	Northern yellow-throat 2
Pigeon hawk 1	Field sparrow 4	Hooded warbler 1
American sparrow hawk 2	Junco 1 ♀	Canadian warbler 5
Black-billed cuckoo 1	Song sparrow 40	Redstart 9
Belted kingfisher 6	Lincoln sparrow 1	Catbird 11
Downy woodpecker 2	Swamp sparrow 6	Brown thrasher 6
Yellow-bellied woodpecker 1	Rose-breasted grosbeak 3	House wren 1
Red-headed woodpecker 2	Scarlet tanager 2	Long-billed marsh wren 4
Flicker 8	Cliff swallow 3	Brown creeper 1
Night hawk 2	Barn swallow 30	White-breasted nuthatch 1
Chimney swift 20	Tree swallow 2	Red-breasted nuthatch 13
Hummingbird 3	Bank swallow 200	Ruby-crowned kinglet 3
Kingbird 7	Rough-winged swallow 4	Wood thrush 11
Crested flycatcher 2	Cedar waxwing 12	Wilson thrush 12
Phoebe 1	Migrant shrike 1	Olive-backed thrush 5
Yellow-bellied flycatcher 1	Red-eyed vireo 2	Hermit thrush 5
Wood pewee 1	Warbling vireo 3	Robin 75
Alder flycatcher 2	Yellow-throated vireo 1	Bluebird 2
Least flycatcher 3	Blue-headed vireo 4	(100 species)
Blue jay 2	Black and white warbler 6	
Crow 17	Nashville warbler 7	
Bobolink 1	Parula warbler 10	
Cowbird 18	Cape May warbler 2 ♂ 1 ♀	

BIRD MIGRATION

Of all seasons, to a bird lover, the time of spring migration, perhaps, brings the deepest thrills of pleasure. There is a peculiar delight in hearing the first warble of the Bluebird as he descends from his homeward flight to the old familiar pear tree, or is first seen down the lane and by the pasture, "shifting his light load of song from post to post along the cheerless fence." The first cheery call of the Robin from the tree top by the house, awakens the blood to a new lease of life, and the plaintive lisp of the Meadowlark, the first *congarée* from the alder tops, and even the first metallic squeak of the Grackle from the spruce tree stirs at the roots of spring awakening. One after another the native birds appear, apparently overflowing with delight to reach their homes again. The copses and meadows ring with song. Many strange and beautiful birds are here also for a brief stay. The woods become alive with juncos, white-throats and warblers. Wherever one turns a new surprise awaits. Perhaps a Lincoln sparrow and a Cape May warbler, or a Philadelphia vireo; and the possibility of a Connecticut or a Kirtland warbler lures you on. It is time to be afield all day and see the sights and hear the songs.

But it is quite impossible to find every bird on the first day of its arrival, the country is so wide and the special haunts of each species are so scattered. One must visit the lake, or bay, to find the ducks and grebes and gulls. The "big woods" of hemlock, beech and maple will furnish different birds from those of the swampy second growth. Along the brook and across the pasture we meet a few which are not found in the meadow, or on the lake shore. On the bushy hillside we add the Chewink, Thrasher and Field sparrow; in the shady glen, the Louisiana water-thrush; and near the box-crowned pole in the garden the first martins. If not at the "float bridge," or the marsh every day, you miss the first note of the Sora, Gallinule, Bittern, or Marsh wren. And so each day and through all the day after the common birds have been found, it becomes



more and more difficult to add a new bird to the list. The observer must be ubiquitous in migration time.

The time of arrival is several days earlier in the southern part of the State and in the lower altitudes than it is in the Adirondack district and the Alleghany plateau. The variation in the time of arrival, both at different stations in the State, and in different years at the same station, is greatest in the case of those birds which arrive during February, March and early April, the difference being sometimes three or four weeks. Birds like the Bobolink and Baltimore oriole, which come early in May, arrive at nearly the same date in all parts of the State [*see map, p. 66*], and their time of appearance varies only a few days at each station. Sometimes an unusually warm wave, early in the season, will bring bluebirds and redwings on the same date to nearly every station in the middle districts. This was the case on the 24th of February 1906, when these birds appeared in considerable numbers at Ithaca, Canandaigua, Rochester and other places. These facts seem to indicate that our birds can travel the whole width of the State in a single day during the migration if weather conditions are favorable, but a study of the tables following page 74 will show that the average date of arrival is several days later for the more northern and the more elevated districts.

There can be no doubt that the arrival of birds with us depends upon the temperature and probably upon the winds. With the advance of a low cyclonic center from the southwest, bringing high temperature to western New York in March, April or May, there is sure to be a bird wave which corresponds in magnitude to the warm weather wave which undoubtedly brought it. Many facts seem to show that the birds of western and northern New York are mostly immigrants from the southwest, and the warm weather as well as the prevailing winds of this region also come from that direction. The warm weather at least furnishes the favorable conditions which induce them to migrate. These are no more an agreeable temperature than an abundance of food and favoring winds to aid their arduous passage.

The sequence of species is nearly the same each season. The Bluebird, Robin, Song sparrow and Redwing are among the earliest arrivals. Late in March, or early in April, the Phoebe, Kingfisher, Purple finch and Vesper sparrow; by the third week in April, the Martin, Barn swallow and Spotted sandpiper are probably here. Early in May comes the great wave bringing the Oriole, Bobolink, Catbird, Kingbird and all the warblers, flycatchers and vireos, the latest among which will probably be the Wood pewee and the Mourning and Black-poll warblers. The males of each species usually precede the females by several days, as is noticeable in the case of the Oriole, Sapsucker, Bobolink and Red-winged blackbird. Some have supposed that the first individuals of each species to arrive are those which are destined to travel farthest north. This may be true in the case of some species, but in most cases the first to arrive are the individuals whose home is at the station, while the last of all to arrive are those going farthest north. In the vicinity of Rochester it is a common thing to see robins, Blue jays and Red-tailed hawks migrating along the shores of Lake Ontario, evidently en route for the far north at a time when individuals of the same species at Rochester have nests and eggs and sometimes young.

During migration birds follow, to some extent, the seashore, lake shore and river valleys, as natural highways of travel. The principal routes across New York State are along the coast, and up the Hudson-Champlain valley, and along the shores of Lake Erie and Lake Ontario. Lesser ones enter the State up the Delaware, Susquehanna and Alleghany valleys. These routes are based chiefly on three classes of observations. The most obvious of these is the direction taken by day migrants which are seen to pass in considerable numbers over the country in the courses indicated. The writer has frequently seen dozens of hawks, hundreds of swallows, and thousands of blackbirds during the spring migration passing along the southern shore of Lake Ontario in the course of a single hour, all traveling toward the east. Ducks and blackbirds are especially prone to follow the river courses and their movements point out the passage from one valley to the next. Great caution must be used, however, not to confuse

the daily movements of these birds to and from their feeding grounds with their migratory movement.

Another indication of the trend of a bird route is the abundance of species and individuals in the country traversed, and when sufficient data are at hand is as infallible a guide as the flights of day migrants. There is abundant evidence to show that birds are far more numerous during both the spring and fall migration along the coast, in the Hudson valley and along the southern shore of Lake Ontario, than they are on the highlands in western and eastern New York.

A third and very important guide to these bird routes is the distribution of species which are not found in every portion of the State. For instance there can be little doubt that the Cerulean warblers which breed in western New York enter that region from the west, or southwest, where that species is found both in the breeding and migration seasons. The same is true of the Migrant shrike and Prairie horned lark which originally invaded New York from the west and still each season return on their migrations along the route which was slowly established by their ancestors. The Orchard oriole, Grasshopper sparrow, and Louisiana water-thrush, which are common in the vicinity of New York city and are also found as far north as Lake George but are not common in the Mohawk valley, undoubtedly travel by the Hudson valley route in their yearly migrations, as is also true of many other species. The Yellow-breasted chat, which is rare in the vicinity of Lake Erie, Lake Ontario and the Mohawk valley, but is fairly common near Binghamton, Elmira, and the southern ends of the Finger Lakes, undoubtedly finds its way up the Delaware and Susquehanna valleys, as does the Kentucky warbler which breeds as far north as Cincinnati, and the Carolina wren which has bred at Ithaca. There is no doubt that the Adirondack birds arrive both by the Hudson and the Ontario routes; those of the western and northern portions coming by way of the southern shore of Lake Ontario, where all the species common in the western Adirondacks are abundant in migration time, while those of the eastern Adirondacks come by way of the Hudson valley.

While many species of birds can undoubtedly travel the whole width of this State in a single day, there is every reason to believe that most of them journey by easy stages, often stopping to feed and rest by the way. During the migration season individuals of different species are often seen about the same spot for several days before they continue their journey. The writer has noticed this occurrence in the case of the Fox sparrow, Lincoln sparrow, Hermit thrush, Northern water-thrush, Solitary sandpiper and many other species, when single individuals or small companies could be found for a week or more at certain chosen spots under circumstances which proved beyond doubt that the same birds were seen each day. A further development of the warm weather which brought them or the arrival of a fresh low center with southwest breeze was usually the signal for their departure. But there is no definite means of determining how long the next stage of a bird's journey may be. Professor Cooke has shown that the average advance of such birds as the Oriole as a species is little more than 25 miles per day, but it may often be that the last flight of an individual, and even its average flight while migrating, is considerably greater. Most species of our common birds fly at the rate of 30 to 40 miles per hour, and many like pigeons, ducks, plover and snipe at the rate of 50 to 70 miles per hour, and when under way they undoubtedly proceed for several hours without rest.

Many of the smaller, more timid birds, migrate by night. This is especially true of species which live habitually under cover of woods and thickets, like thrushes, warblers, vireos, wrens, rails and sparrows. Their calls are often heard as they are passing overhead and they may be seen by looking through a telescope or field glass focused on the moon as they cross in front of its bright surface. Rains, or high head winds, cause them to descend and so the country where they are overtaken by the storm will be filled with fresh arrivals in the morning. The Woodcock and Whip-poor-will, which are largely nocturnal in habits, perform the migratory flight entirely at night. Species like the hawks, blackbirds, swallows, bluebirds and robins which are accustomed to wide flights across the open

country, migrate largely by day, and are often seen as they pursue their way at a moderate elevation. Even the thrushes and warblers are occasionally found to migrate by day, passing from one grove or orchard to the next in their route. At such times they fly near to the ground, but when they migrate by night they fly high above the tree tops, usually at an altitude of several hundred feet, and sometimes thousands of feet above the earth.

The instinct to move about in search of a favorable food supply is common to all species of birds, even the most sedentary, like the Canada grouse and Banded-backed woodpecker, which wander about within the limits of the spruce forest to a considerable extent. Others, like the Black-backed woodpecker, venture still farther and have been taken in all parts of the State. In some species, like the common Crow and the Robin, there is merely a withdrawal from the northern portion of their breeding grounds while as species they are resident in the warmer portions of their range. Thus it would be possible to mention all degrees of the migratory habit up to the most extreme, represented by such birds as the Whistling plover which breeds on the islands and shores of the Arctic ocean and passes the winter as far south as the valley of the Paraná and the plains of Patagonia, merely visiting us for a few days on its semiannual journey of 8000 miles.

There can be no doubt that the failure of the food supply and the desire to live in an even temperature are factors which enter into the solution of the problem of bird migration. Winter drives the birds south and like so many chickens which have been chased from a forbidden garden they come flocking back again as soon as winter has withdrawn. For in the wide northern lands which springtime opens up, with their wealth of food and shelter and safe retreat for rearing their young, the birds have ample reason to return to the spot of their nativity. Undoubtedly the glacial period had much to do with accentuating the yearly effect of the seasons and stamping in the racial instinct of migration, so that at the present day it is an impulse which must be obeyed, in many instances, even before the food supply fails; for those which wait too late may be destroyed before the winter

haven is reached. The manner and cause of bird migration has furnished food for speculation to countless observers since the earliest times and is a never failing source of fascination to the bird student.

SPRING ARRIVALS

Of the 100 and more observers in different parts of New York who have reported the migrations only four or five sent schedules of any extent on the fall migrations, and the notes on the spring movement in many cases are fragmentary, and very few have reported more than the commonest species of birds. The incomplete nature of these reports even in localities from which the records are most desired has rendered it extremely difficult to map the advance of species and trace their migration routes. Selecting 20 of our migratory birds which are most universally reported, and 32 of the observers who sent the longest schedules, I find the Robin was reported by 31 observers, the Bluebird and Baltimore oriole by 30, the Phoebe by 27, the Chimney swift by 26, the Kingbird by 25, the Flicker, Barn swallow and Catbird by 24, the Chipping sparrow, Bobolink, Yellow warbler and Song sparrow by 23, the Red-winged blackbird and Crow blackbird by 21, the Cowbird and Crested flycatcher by 20, the Hummingbird by 18, the Brown thrasher by 17, the Spotted sandpiper by 16.

The migration dates of all species will be found in the county schedules as explained under that heading, but for purposes of comparison, we have selected the dates of first appearance in different years at stations in widely separated parts of the State. For these comparative tables 90 of the commoner migratory birds which are most generally reported have been selected. Many interesting results will follow a careful study of the tables. Some stations situated near together were taken to show how at variance reports from such places may be, and I have found that two observers at the same station often record the same species at dates several days apart, which is undoubtedly due to the fact that one observer succeeded in catching the first migrant on the day of its actual arrival, or was fortunate enough to visit its proper haunts.

It often happens that a species is reported on a given date far to the north of stations where it has not yet been observed. This also indicates that the species is not always reported on the first day of its arrival, and the most reliable reports result from the combined observation of several observers who divide the country between them.

In comparing the average dates of 40 species for the years 1880, 1882 and 1883 at Ossining, Springville and Locust Grove, we find 25 earliest at Ossining, 14 at Springville, and 1 (the Hermit thrush) at Locust Grove. At Locust Grove 30 appeared latest, at Springville 7, and at Ossining 3. The grand average of these 40 species was two and one fourth days earlier at Ossining than at Springville, and four and two thirds days earlier than at Locust Grove. This average probably indicates correctly the general progress of migration in the State, but the difference in the time of arrival will usually be much greater in the case of the early migrants than those which come during the warm waves of early May.

The birds at Springville, and of western New York in general, come mostly by way of the Mississippi valley or the western slope of the Alleghany plateau, and as migration in the interior is earlier than along the coast of the United States in our latitude, it is evident that those species which are earliest at Springville are migrants from the interior. Some species, however, which surely come to western New York by way of the interior, are later than at Ossining, as in the case of the Palm warbler. This, however, is a different geographic race from the Yellow palm warbler which is found at Ossining, and its chief migration route is far to the west of New York. Thus the Palm warblers which reach New York are out of their proper course and might be expected to be late.

The observers who made these migration records are as follows:

Staten Island	William P. Heineken
Long Island City	W. F. Hendrickson
Shelter Island	W. W. Worthington
Newburgh	F. B. Robinson
Carmel	W. A. Mead
Stanfordville	Mary Hyatt
Ballston Spa	S. R. Ingersoll

Gloversville	Charles P. Alexander
Elmira	Rufus Stanley, Stella M. Lawrence, Fannie B. Rice
Corning	Mr and Mrs George B. Hollister
Binghamton	W. N. Clute, Lillian Hyde, John A. Dyer
Cincinnatus	H. C. Higgins
Alfred	F. S. Place, A. C. Whitford
Ithaca	The Department of Vertebrate Zoology, Cornell University, (especially, Dr H. D. Reed, L. A. Fuertes, A. H. Wright, A. A. Allen, A. C. Weed, Francis Harper)
Branchport	Verdi Burtch, Clarence F. Stone
Erie, Pa.	W. E. C. Todd, W. W. Worthington
Jamestown	Mrs R. R. Rogers, L. T. Sprague
Lockport	J. L. Davison
Rochester	The Bird Section of the Rochester Academy of Science (40 members, E. H. Eaton, <i>Chairman</i> ; W. L. Dobbin, <i>Secretary</i>)
Canandaigua	A. P. Wilbur, Ernest Watts, F. T. Antes, Maurice Blake, E. H. Eaton
Geneva	F. H. Hall, W. P. Wheeler
Penn Yan	Verdi Burtch
Auburn	F. J. Stupp jr, Matilda Jacobs
Lowville	James H. Miller
Ossining	Dr A. K. Fisher
Springville	E. H. Eaton
Locust Grove	Dr C. Hart Merriam

PUBLISHED LOCAL LISTS

An immense volume of literature relating to the birds of New York State has accumulated during the 300 years which have elapsed since Hudson sailed into New York harbor. Casual references in the notes of early travelers and colonial writers; definite records in the works of Wilson, Audubon, Nuttall and other early ornithologists; numerous statements in the works of Baird, Brewer, Ridgway, Coues and a host of modern writers in America and some in Europe; many incidental records or bits of life histories in scientific and popular magazines, such as the *American Naturalist*, *Science*, *Scribner's*, *Forest and Stream*, and others; frequent accounts of local or general interest in the numberless newspapers of the State and adjacent territory, numerous references in government and museum reports and bulletins; and finally records in the *Auk*, *Osprey*, *Wilson Bulletin*, *Ornithologist and Oologist*, and other ornithological publications, all have contributed to the distribution, migration and habits of our birds as reported in the present volume. The work of *completing* the history and bibliography of New York ornithology has proved a task so seemingly endless, however, that its publication is deferred for the present. The author has found it impossible to assert with any degree of certainty who first added the different species of our common birds to the list of our avifauna. It is evident from the writings of Wilson and Audubon that most of our common birds were well known in New York during their time, and frequent references are made in their works to different species of water birds occurring on Long Island.

For the use of New York bird students we have deemed it advisable to publish a comparative summary of the principal bird lists referring specially to the New York fauna, beginning with Giraud and DeKay.

The *Birds of Long Island*, by J. P. Giraud jr, was published in 1844, by Wiley and Putnam, 161 Broadway, N. Y., and is an octavo volume of 397 pages, with descriptions and annotations of 286 species. Only about 200 copies of this book were printed. The author includes the Crested

grebe, Manx shearwater and Little stormy petrel, which are European species with no definite records for New York, though cited by most of the early writers. His records of *Lestris parasiticus* and *L. richardsoni* probably both refer to the Parasitic jaeger. His Canadian woodpecker may be the Northern hairy woodpecker, subspecies *leucomelas*, but no recent records or specimens are known. The Wood wren is now regarded the same as the House wren. Thus it is evident that Giraud treated 280 of our present list as occurring on Long Island.

The Zoology of New York, Part 2, Birds, by James E. DeKay, also appeared in 1844, published by the State Museum. This large quarto work includes 353 pages of text, with descriptions and brief histories, and 141 plates, showing 358 figures of native birds in colors. DeKay describes 309 species as belonging to New York or, like the Carolina parakeet, as having occurred here. Some species like the Magpie, Carolina titmouse, and Whistling warbler are admitted on supposition or hearsay evidence. The Wood wren and Hemlock warbler are not valid species, and the Crested grebe is European. This is the best known account of New York birds, although it has been evident for many years that important additions should be made to bring the knowledge of our ornithology to the present time. In the 64 years which have elapsed since DeKay's report, about 100 species have been added to the State list.

George N. Lawrence's *List of the Birds of New York and Vicinity*, which appeared in 1866 in the Proceedings of the Linnaean Society of New York, enumerates 327 species, but only a few are annotated. The Crested grebe, Common murre, Manx shearwater, Little stormy petrel, Tropical fulmar and Carolina chickadee appear without definite records and no New York specimens have been found in the Lawrence collection. The European woodcock and Red-cockaded woodpecker were entered as having occurred in neighboring parts of New Jersey, and the Hutchins gull, Green-backed mallard, Cooper sandpiper and Wood wren are not regarded as valid species. Thus Lawrence included 315 of our present list as New York species.

The Summer Birds of the Adirondacks in Franklin County, New York, by Theodore Roosevelt jr, and H. D. Minot, 1877, is a brief but satisfactorily annotated list of 97 species occurring in the Northern Adirondacks in the summer time. This is the first definite study of our Adirondack avifauna.

A List of the Birds of the Hudson Highlands with Annotations, by Dr Edgar A. Mearns appeared in the Bulletin of the Essex Institute, Salem, Mass., beginning in volume 10, 1878, and concluded in volume 13, 1882, with an addendum of four species published in the *Auk*, 1890. This is one of our very best lists, including records of migration, relative abundance, and food of the different species, together with a fine series of measurements of birds taken in this State. These dimensions have been a constant source of authority in the preparation of the present volume. It includes 213 species, 99 of which are recorded as breeding in the Highlands.

A Revised List of Birds of Central New York, from the observations of Frank R. Rathbun, Gilbert Fowler, Frank S. Wright and Samuel F. Rathbun, published at Auburn, N. Y., in 1879, is an admirable list of 236 species, of which 83 are reported as breeding in central New York. The birds named in this list are all admitted as New York species at the present time.

A Preliminary List of Birds Ascertained to Occur in the Adirondack Region, North Eastern New York, by C. Hart Merriam M.D., published in the *Auk*, 1881, with addenda in 1882-84, is a briefly annotated list of 211 species, with valuable notes on the fauna and flora of the region. This list, together with Dr Merriam's notes on Lewis county birds, published in the Bulletin of the Nuttall Ornithological Club, 1878 and 1879, constitutes the best account we have of the ornithology of the Adirondack region, containing much that is interesting on the natural history of some of our native birds.

A Review of the Summer Birds of a Part of the Catskill Mountains, with Prefatory Remarks on the Faunal and Floral Features of the Region, by Eugene Pintard Bicknell, published in the Transactions of the Linnaean Society of New York, in 1882, is another valuable faunal list treating of

90 species of birds found nesting in the Catskill region, with exhaustive remarks on the floral and faunal areas represented. This list of 54 pages gives us our first definite and reliable knowledge concerning the Canadian fauna which inhabits the summits of the Catskills.

Our Birds and Their Haunts, by Rev. J. H. Langille (Estes & Lauriat, Boston, 1884) is an extremely interesting volume devoted to the commoner native birds of the northeastern states. A large portion of the records refer to western New York where the author formerly resided.

Birds of Chautauqua County, by John M. Edson, is an address delivered before the Chautauqua Society of History and Natural Science, in Jamestown, N. Y., January 29, 1885. It is a briefly annotated list of 152 species.

A List of the Birds of Onondaga County, by Morgan K. Barnum, Syracuse University, 1886, is a reliable list of 204 species.

An Annotated List of the Birds of Oneida County, N. Y., and its Immediate Vicinity, by William L. Ralph M.D., and Egbert Bagg, Oneida Historical Society, volume 3, page 101, 1886, is an exhaustive and reliable list. Together with the additions which have appeared in the *Auk* up to 1900, the Oneida county list contains 248 species, of which 109 have been found breeding in that vicinity.

Birds of Niagara County, N. Y., by James L. Davison, appeared in *Forest and Stream*, in 1889, and names 204 species, with 93 breeding in the county.

A List of the Birds of Buffalo and Vicinity, by W. H. Bergtold, M. D., from the Bulletin of the Buffalo Naturalists Club, volume 1, number 7, 1889, mentions 237 species very briefly and gives 111 as breeding near Buffalo.

An Annotated List of the Birds Known to Occur within Fifty Miles of New York City, by Frank M. Chapman, American Museum of Natural History, 1894, and a revised edition of the same in the American Museum Journal, volume 6, numbers 2 and 3, 1906, names 348 species in the first edition and 353 in the second, besides three extirpated species, four species liberated but not established, one doubtful and not counted (Stormy petrel), and three forms not regarded as valid species. Mr Chapman's nesting and

migration dates are taken from his *Handbook of the Birds of Eastern North America*, and from *An Annotated List of the Birds Known to Breed within Fifty Miles of New York City*, Guide Leaflet 14, American Museum, 1904. 120 species are listed as breeding near New York.

A Catalogue of the Birds of Chemung County, by William H. Gregg M.D., 1891, mentions 200 species, but only 165 are accorded any definite records for Chemung county.

Birds of Western New York With Notes, by Ernest H. Short, Albion, 1896, records 289 species as occurring and 119 as breeding.

The list of the *Birds of Sing Sing, N. Y.*, by Dr A. K. Fisher, of the Biological Survey, Washington, D. C., is taken from Chapman's *Handbook*, 1898, and gives a very complete record of the migration dates for the lower Hudson valley. The number of birds in the list is 233.

Birds of Long Island, by William Dutcher, part of which appeared in Chapman's *Handbook*, 1898, gives the best dates we have for the migration of waterfowl and shore birds on the coast of the State. These notes, together with numerous records of Long Island birds, which have appeared from time to time in the *Auk* are included in these columns.

Mr Dutcher has kindly consented also to the use of his Long Island Notes consisting of three large volumes of records and a fourth containing complete data of all the specimens in his collection taken on Long Island, over 2000 specimens. These have furnished much more exhaustive migration dates than were obtained from his published notes.

Birds of Western New York, by Elon Howard Eaton, Proceedings of the Rochester Academy of Science, 1901, includes 319 species, of which 128 are known to breed. It gives the relative abundance, migration and nesting dates as well as the records for rare species, and also contains a chart to illustrate graphically the time and manner of occurrence of each species.

Birds of Madison County, N. Y., by George Charles Embury, Colgate University, 1901, is a very satisfactory list of 192 species, 75 of which are

known to breed. It mentions the relative abundance and time of arrival of the different birds. Stars in this list refer to William R. Maxon's review of Embury's publication, *Auk*, 20, 1903, p. 262-66.

A List of the Birds of Long Island, N. Y., by William C. Braislin, from the Proceedings of the Linnaean Society of New York for the year ending March 1907. This is a complete list of the birds known by Dr Braislin to occur on Long Island, including 364 species and giving a good series of migration dates and records of accidental visitants.

COUNTY SCHEDULES

These tables have been prepared to show in condensed form the status of our knowledge concerning the birds of each county in New York State. The information has been gathered from schedules and bulletins sent out from the State Museum by Dr Farr in 1900, and subsequently returned by numerous observers in all parts of the State, also from migration schedules and correspondence returned to the author in 1905, 1906 and 1907. The author's personal notes are largely embodied in the lists of Erie, Ontario, Monroe and Essex counties, his observations, begun at Springville in 1880, having been principally confined to western New York, but in part to the eastern and southeastern parts of the State. All reports received from any source have been given due consideration, but it has seemed advisable to omit numerous records of unusual birds because the reports were based on hearsay evidence or merely from having been seen, no absolute confirmation of the record being obtainable. Numerous records also, which have appeared in print, have not been included, because after careful investigation they were found to refer to some other species than that originally reported. At the same time, it is probable that some reports which have been omitted from these tables were of actual occurrences of the species named, but since they were of such an unusual nature it has seemed best to omit them when they were not substantiated by specimens or subsequent observations.

The author wishes to express his appreciation of the assistance which has been rendered to the State Museum by all those who have given their time and effort to the compilation of these county lists. For the guidance of students who may desire to know the source of our information, we append the following list of correspondents:

ALBANY COUNTY

George H. Chadwick, Canton	George Richard, Cody, Wyo.
W. W. Judd, Albany	Will Richard, Cody, Wyo.
Isaac H. Vrooman jr, Albany	

ALLEGANY COUNTY

E. S. Gilbert, Canaseraga	F. S. Place, Alfred
A. C. Whitford, Alfred	

BROOME COUNTY

W. N. Clute, Binghamton	Lillian Hyde, Binghamton
John A. Dyer, Binghamton	A. L. Reed (<i>deceased</i>)
Lillian Reed, Berkshire	

CATTARAUGUS COUNTY

Fred R. Eaton, Olean	John W. Kales, Franklinville
W. H. Eldredge, Leon	Evelyn M. Moore, Olean

CAYUGA COUNTY

George C. Embury, Auburn	F. R. Rathbun, Auburn
Matilda Jacobs, Aurora	Frederick J. Stupp, Auburn
Foster Parker, Cayuga	E. G. Tabor, Meridian
F. S. Wright, Auburn	

CHAUTAUQUA COUNTY

A. E. Kibbe, Mayville	L. T. Sprague, Jamestown
Mrs R. R. Rogers, Jamestown	Sarah Waite, Dunkirk

CHEMUNG COUNTY

Stella M. Lawrence, Elmira	Fannie B. Rice, Elmira
R. L. Moss, Elmira	Rufus Stanley, Elmira

CHENANGO COUNTY

F. H. Williams, Greene

CLINTON COUNTY

George C. Shattuck, Boston, Mass.

COLUMBIA COUNTY

Miss E. Sackett, East Chatham

Margaret R. Wilbur, Old Chatham

CORTLAND COUNTY

H. C. Higgins, Cincinnatus

DELAWARE COUNTY

W. E. Yager, Oneonta

William J. Youngs, Youngs

DUTCHESS COUNTY

Lispenard S. Horton, Gretna

Mary Hyatt, Stanfordville

ERIE COUNTY

Arthur A. Allen, Buffalo
 Dr Carlos Cummings, Buffalo
 E. H. Eaton, Springville
 Florence A. Jones, Willink
 E. F. Lein, Buffalo
 John D. Macpherson, Buffalo

Edward Reinecke, Buffalo
 Ottomar Reinecke, Buffalo
 E. P. Reynolds, Buffalo
 James Savage, Buffalo
 Mathilde Schlegel, East Aurora
 Charles H. Stevenson, Kenmore

ESSEX COUNTY

H. L. Achilles, Rochester
 C. F. Batchelder, Cambridge, Mass.
 J. H. Bradstreet, Rochester
 W. Scott Brown, Elizabethtown
 Dr C. A. Dewey, Rochester
 Prof. C. W. Dodge, Rochester

E. H. Eaton, Canandaigua
 George Fuller, Rochester
 A. H. Kallies, Lake Placid
 Jennie Kimball, Williamsville
 Tom Taylor, Rochester
 Edgar S. Tweedy, North Elba

Marcellus Wild, Rochester

FRANKLIN COUNTY

A. R. Fuller, Malone

F. Seymour Woodruff, Albany

FULTON COUNTY

Charles P. Alexander, Gloversville

Donald Frazer, Johnstown

GENESEE COUNTY

G. P. Clarkson, Buffalo

Prof. F. M. Comstock, Ithaca

GREENE COUNTY

Emily Becker, Catskill

George H. Chadwick, Canton

HAMILTON COUNTY

Egbert Bagg, Utica

C. J. Pennock, Kennett Square, Pa.

Dr William L. Ralph (*deceased*)

HERKIMER COUNTY

C. L. Avery, Herkimer	J. R. Benton, Little Falls
Egbert Bagg, Utica	G. S. Hardy, Littleville
Dr William L. Ralph (<i>deceased</i>)	

JEFFERSON COUNTY

Minna C. Anthony, Watertown	L. C. Snyder, Lacona
William Hagedone, Woodville	

KINGS, QUEENS AND NASSAU COUNTIES

G. B. Badger, Brooklyn	W. F. Hendrickson, Long Island City
Dr William C. Braislin, Brooklyn	Arthur H. Howell, Washington, D. C.
C. J. Brasher, Queens co.	J. L. Shields, Floral Park
G. K. Cherrie, Brooklyn	S. H. West, Flushing

LEWIS COUNTY

Dr C. Hart Merriam, Washington, D. C.	James H. Miller, Lowville
---------------------------------------	---------------------------

LIVINGSTON COUNTY

Prof. Guy S. Bailey, Geneseo	A. L. Thorne, Sonyea
------------------------------	----------------------

MADISON COUNTY

G. C. Embody, Auburn	S. A. Maxon, Oneida
Oscar S. Gorton, West Bloomfield	William R. Maxon, Washington, D. C.
Dorothy B. Leonard, Kenwood	Gerrit S. Miller jr, Washington, D. C.

MONROE COUNTY

J. D. Archer, Hilton	Francis Gott, Rochester
David Bruce, Brockport	George F. Guelf, Brockport
E. H. Eaton, Canandaigua	Charles G. Presser, Rochester
Truman R. Taylor, Rochester	

Also records of the Bird Section of the Rochester Academy of Science.

MONTGOMERY COUNTY

Donald Frazer, Johnstown

NEW YORK CITY

L. S. Foster (*deceased*)

Also published records of many observers.

NIAGARA COUNTY

J. L. Davison, Lockport	F. A. W. Dean, Effingham, Ill.
-------------------------	--------------------------------

ONEIDA COUNTY

J. S. Allwood, Vernon	A. R. Eastman, Waterville
Egbert Bagg, Utica	A. S. Hopkins, Rome
Graham Bronson, Vernon	W. B. Mann, Sangerfield
Dudley Dorn, Point Rock	A. C. Weed, New Hartford
W. J. B. Williams, Holland Patent	

ONONDAGA COUNTY

Dr W. M. Beauchamp, Syracuse	E. H. Johannot, Syracuse
J. A. Dakin (<i>deceased</i>)	A. W. Perrior, Syracuse

ONTARIO COUNTY

Frank T. Antes (<i>deceased</i>)	D. Byron Waite, Springwater
Maurice Blake, Canandaigua	Ernest Watts, Canandaigua
B. S. Bowdish, Phelps	W. P. Wheeler, Geneva
E. H. Eaton, Canandaigua	Addison P. Wilbur, Canandaigua
F. H. Hall, Geneva	Charles H. Wilder (<i>deceased</i>)

ORANGE COUNTY

F. A. Heiss, Port Jervis	Mary O. Lamb, Middletown
F. B. Robinson, Newburgh	

ORLEANS COUNTY

Dana C. Gillett, Medina	C. F. Posson, Medina
-------------------------	----------------------

OSWEGO COUNTY

Dr Newton Cook, Sandy Creek	O. J. Russell, Port Ontario
Dr R. L. Crockett, Sandy Creek	J. W. Soule, Sandy Creek
D. D. Stone, Lansing	

OTSEGO COUNTY

J. J. Wood, Oneonta

PUTNAM COUNTY

W. A. Mead, Carmel

RENSSELAER COUNTY

Charles E. Chambers, Troy	W. C. Hitchcock, Cropseyville
Martin J. Conway, Lansingburg	A. F. Park (<i>deceased</i>)
Dr T. B. Heimstreet, Troy	F. S. Webster, Pittsburg, Pa.

RICHMOND COUNTY

Wm. P. Heineken, New Brighton

ROCKLAND COUNTY

L. W. Brownell, Nyack

ST LAWRENCE COUNTY

W. A. Newell, Ogdensburg

Mary B. Sherman, Ogdensburg

SARATOGA COUNTY

A. S. Brower, Ballston Spa

S. R. Ingersoll, Ballston Spa
Will Richard, Cody, Wyo.

SCHENECTADY COUNTY

James E. Benedict, Washington, D. C.

SCHOHARIE COUNTY

Dr D. Norwood, Esperance

SENECA COUNTY

C. J. Hampton, Cosad

Foster Parker, Cayuga

STEUBEN COUNTY

George B. Hollister, Corning

Mrs George B. Hollister, Corning
A. H. Wood, Painted Post

SUFFOLK COUNTY

W. A. Babson, Bellport

O. W. Degen, Plum Island

A. H. Helme, Miller's Place

Mrs A. W. Lowerre, Southold

James G. Scott, Montauk

W. W. Worthington, Shelter Island

TIOGA COUNTY

Earl D. Hammond, Sayre, Pa.

J. Alden Loring, Owego

TOMPKINS COUNTY

A. A. Allen, Buffalo

L. A. Fuertes, Ithaca

Francis Harper, Ithaca

Dr H. D. Reed, Ithaca

A. C. Weed, Ithaca

A. H. Wright, Ithaca

ULSTER COUNTY

E. P. Bicknell, New York

John Burrows

WARREN COUNTY

Anna Cheney, Glens Falls

Dr A. K. Fisher, Washington, D. C

WASHINGTON COUNTY

Stewart H. Burnham, Vaughns

F. T. Pember, Granville

WAYNE COUNTY

B. S. Bowdish, Phelps

Mary S. Eames, Newark

WESTCHESTER COUNTY

L. V. Case, Bedford

Dr A. K. Fisher, Washington, D. C.

Gerald H. Thayer, Monadnock, N. H.

WYOMING COUNTY

Rev. J. C. Warren, Pike

YATES COUNTY

Verdi Burtch, Branchport

Rev. E. C. Hull, Dresden

Clarence N. Davis, Branchport

Louise Sumner, Crosby

C. F. Stone, Branchport

The abbreviations used in the first column of each county list classify the birds under the following heads. *Residents* (res) are those species which are found at all seasons of the year and breed within the county. *Summer residents* (sr) spend only the warmer part of the year in the county, coming from the south in the spring, returning to the south to pass the winter. *Transient visitants* (tv) are species which merely pass through the county in the spring or fall, or both, on the way to their breeding grounds. *Winter visitants* (wv) are those which come from their homes in the north to pass the winter with us. *Summer visitants* (sv) are species which breed farther south but visit us in considerable numbers during the summer after the breeding season is over. *Accidental visitants* (av) are species which live so far from our borders, and are found here so rarely, that their occurrence may be regarded as accidental.

In the second column the relative abundance of species is indicated by the terms *Abundant* (ab), applied to such birds as the Robin and Song sparrow, which are very common in the locality. *Common* (c) indicating a less degree of abundance. *Fairly common* (fc) birds are such as are found in limited numbers at the proper place and season, like the Scarlet tanager, or Migrant shrike in western New York. *Uncommon* (unc) birds are such as can not be called rare and yet are of unusual occurrence. Birds of *Occasional occurrence* (oc) are those which are not observed each season but appear at intervals of a few years. A *rare* bird is one which has been recorded only a few times and yet can not be regarded as accidental. We have also found it convenient in these tables to use such expressions as *local*, referring

to birds which can only be seen in particular localities; and *irregular*, indicating that the species may be much more common in some seasons than in others. It is sometimes necessary to rank a species under two, or even three heads, as for instance the Junco or Common snow bird, which is an abundant transient visitant in Ontario county, an uncommon winter visitant, and a rare summer resident.

Migration dates given in the third column represent as far as accessible the earliest, average and fairly late dates of arrival of all migratory birds from the south and in the fourth column is recorded the date of departure for the north of all those species which are transient or winter visitants. The fifth column contains the dates at which these species return from the north again; and the sixth column records the dates of departure for the south of transients and summer residents; and the last column for each county indicates whether the species breeds within its borders and, where possible, gives the date when fresh eggs have been found.

Whenever dates are given in these columns the effort has been made to record the earliest, average, and late dates for both migration and nesting, but unfortunately, in spite of the unlimited time which has been expended with this object in view, the result in most counties has been far from satisfactory, yet represents the best that can be done at the present time. In nearly every county it would be possible to insert more complete and accurate dates, both for migration and nesting, than those which appear, from our knowledge of what must be true in those localities; we have considered it far better, however, to adhere to the actual date received and refer those who are in search of fuller dates of migration in different parts of the State, to the schedules for Cayuga, Erie, Lewis, Madison, Monroe, Ontario, Orange, Saratoga, Steuben, Suffolk, Tompkins, Westchester and Yates, where the dates are based on observations extending through a series of years. In cases of rare or accidental birds with only one or two dates for the county, we have entered the date in the column where it seemed most appropriate and have often inserted the year, thereby making the record of greater value.

CLASSIFICATION

Although birds have been studied more than any other class of animals, authorities on classification are still widely at variance in their views as to the proper arrangement of orders, families, genera and species. The difficulty arises from the fact that birds, although so closely related to reptiles that Huxley proposed to unite them in the same class, have nevertheless been so modified in details of superficial structure and in color, that there has been a continual temptation to raise groups into higher positions than correspond to those of equal value in other branches of the animal kingdom. At the same time the differentiation of the various portions of avian anatomy has reached such a high development, on account of the bird's freedom of movement and adaptability to surroundings, that it is sometimes impossible to decide whether a given structure or its absence is due to real relationship or to a parallel development in unrelated forms. Assuming that the different systems of classification are intended to represent, as they should, the real relationship of the different species, it will be evident from a survey of the arrangement of the different orders of birds found in New York State, in the three systems which are best known in America at the present time, how far we are from a complete knowledge or agreement on this subject. It must be borne in mind, however, that no linear sequence of species such as becomes necessary in book writing can possibly show the proper relationship of the families and species. An arrangement like the spreading, dividing and subdividing branches of a tree could be made to show much more accurately their proper relationships. When we consider the difficulty of discovering the complete history of the evolution of birds, on account of the wonderful parallel development which has occurred in many orders and families, and the insuperable obstacles in the way of a linear arrangement, it will be easy to understand the disagreement of authorities on classification. It is certain that a more correct arrangement could be adopted than the classification current

in American ornithology but we have decided to employ it in the present volume, as this is the system most generally familiar here. For the use of those students who do not have access to Sharpe's Hand-List and Ridgway's Catalogue, which unfortunately is not yet completed, we add for comparison the arrangement of the orders of New York birds, numbered in order of sequence, as they appear in the American Ornithologists Union Check-List of 1895, Sharpe's *Hand-List of the Genera and Species of Birds*, and Ridgway's *Birds of North and Middle America*, the latter classification being based principally upon that of Dr Hans Gadow.

Class **AVES**Subclass **CARINATAE****ORDER**

A. O. U.	SHARPE	RIDGWAY
1 Pygopodes	1 Galliformes	1 Colymbiformes
2 Longipennes	2 Columbiformes	2 Procellariiformes
3 Tubinares	3 Ralliformes	3 Ciconiiformes
4 Steganopodes	4 Podicipedidiformes	4 Anseriformes
5 Anseres	5 Colymbiformes	5 Falconiiformes
6 Herodiones	6 Procellariiformes	6 Galliformes
7 Paludicolae	7 Alciformes	7 Gruiformes
8 Limicolae	8 Lariformes	8 Charadriiformes
9 Gallinae	9 Charadriiformes	9 Cuculiformes
10 Columbae	10 Gruiformes	10 Coraciiformes
11 Raptores	11 Ardeiformes	11 Passeriformes
12 Psittaci	12 Anseriformes	
13 Cocyges	13 Pelecaniformes	
14 Pici	14 Cathartidiformes	
15 Macrochires	15 Accipitriformes	
16 Passeres	16 Strigiformes	
	17 Psittaciformes	
	18 Coraciiformes	
	19 Cocyges	
	20 Piciformes	
	21 Passeriformes	

A comparison of these three systems to show the equivalents of the several orders of our birds, with each order numbered according to its position in each author's classification, gives the following agreement:

GADOW-RIDGWAY	A. O. U. 1895	SHARPE	
1 Colymbiformes	1 (part) Pygopodes (less Alcidae)	4 Podicipedidiformes	Grebes
2 Procellariiformes	3 Tubinares	5 Colymbiformes	Loons
3 Ciconiiformes	4 Steganopodes	6 Procellariiformes	Petrels etc.
4 Anseriformes	6 Herodiones	13 Pelecaniformes	Pelicans etc.
5 Falconiformes	5 Anseres	11 Ardeiformes	Hérons
6 Galliformes	11 (part) Raptores (less Striges)	12 Anseriformes	Geese etc.
7 Gruiformes	9 Gallinae	14 Cathartidiformes	American vultures
	7 Paludicolae	15 Accipitriformes	Hawks etc.
		1 Galliformes	Hens etc.
		3 Ralliformes	Rails
8 Charadriiformes	1 (part) Alcidae	10 Gruiformes	Cranes
	2 Longipennes	7 Alciformes	Auks
	8 Limicolae	8 Lariformes	Gulls
	10 Columbae	9 Charadriiformes	Plovers etc.
9 Cuculiformes	12 Psittaci	2 Columbiformes	Pigeons
	13 (part) Coccyges (less Alcyones)	17 Psittaciformes	Parrots
		19 Coccyges	Cuckoos
10 Coraciiformes	11 (part) Striges	16 Strigiformes	Owls
	15 Macrochires	18 Coraciiformes	Kingfishers etc.
	13 (part) Alcyones	20 Piciformes	Woodpeckers
11 Passeriformes	14 Pici	21 Passeriformes	Perching birds
	16 Passeres		

BIRDS OF NEW YORK

Class **AVES**

Subclass **CARINATAE**

Order **PYGOPODES**

Diving Birds

The Pygopodes (*πυγή* rump; *πούς*, *ποδός* foot) as their name signifies are characterized by the posterior position of the legs, the crura, or "drumsticks," being buried in the general body integument and the heel joint close to the tail. These birds therefore stand, or sit, with the body in a nearly perpendicular position and walk with great difficulty and awkwardness. Palate schizognathous, vomer cleft, maxillo-palatines lamellate, biceps slip present, plumage aftershafted, oil gland large and tufted; sexes alike; the neck and body are elongated, the tarsi compressed, the feet webbed or broadly lobed, the plumage dense, and the body almost entirely incased in a layer of fat. The numerous, long jointed ribs and long sternum form extensive body walls which mostly inclose the internal organs. Hence they are highly adapted to an aquatic life. In fact they pass the greater part of their time in the water and are surpassed by no birds as divers and by none, or few, as swimmers. Wings short, scarcely reaching the base of the tail. The latter short, or rudimentary. Bill horny, with no lamellae and no pouch. Gape large.

The members of this order, comprising the three following families, are famous for their diving powers, poor flight, helplessness on land, and coarse and unpalatable flesh. They are the most aquatic of all our birds and subsist on a diet of fish and other water animals. They nest on the ground or rocks, and the young are ptilopaedic, or covered with down.

Family **COLYMBIDAE**

Grebes

Order Podicipediformes in Sharpe's Hand-List

The grebes are a cosmopolitan family of about 30 species characterized by semipalmated and broadly lobed feet; hallux free and broadly lobed;

tarsi compressed, scutellate, the rear edge serrate; nails broad, flat and blunt; tibio-tarsal (heel) joint naked; bill straight or sometimes curved at the tip; a naked strip from the eye to base of bill; tail rudimentary; wings weak, conspicuously concavo-convex; fifth cubital wanting; primary feathers 12 in number, 11 being developed and several emarginate, concealed when closed by the elongated inner secondaries. Like the loons they have a large apophysis of the tibia which renders it difficult to unjoint the knee in the usual manner when dissecting. Carotids single. Eggs often as many as 7 or 9. Young praecocial.

These are the "Hell-divers," or lobe-footed divers, so well known to our youthful gunners. The Western grebe which is not found in New York furnished most of the grebes' breasts so extensively used on ladies' hats and muffs a few years ago. It is a curious fact that a grebe's stomach usually contains, at least during the spring migrations, a compact mass of the bird's own feathers, probably swallowed during the molt. Although grebes can scarcely be called beneficial birds, we can well spare the small fry which they destroy as a return for the lively entertainment which they furnish all visitors to our lakes and bays.

Colymbus holboelli (Reinhardt)

Holboell Grebe

Plate 1

Podiceps holboellii Reinhardt. Vid. Med. 1853. p. 76

Podiceps cristatus and *P. rubricollis* DeKay. Zool. N. Y. 1844. pt 2, p. 275, 276

Colymbus holboellii A. O. U. Check List. Ed. 2. 1895. No. 2

colym'bus, Lat., a diving bird; *hol'boelli*, in honor of C. Holboell

Description. *Summer plumage:* Upper parts glossy greenish black, feathers on the back edged with grayish; secondaries white with black shafts and brownish tips; throat patch and side of head white, tinged with silvery ash; under parts silvery white, each feather with a dusky shaft and terminal spot, producing a peculiar dappled appearance; front and sides of neck and upper breast deep brownish red; bill black, yellowish at base of lower mandible; iris carmine; crest and ruff rather inconspicuous. *Winter adult and immature:* Crests scarcely discernible; upper parts brownish black; throat, sides of head, and under parts white, mostly without spots; front and sides of neck, and sides ashy; bill yellowish, dusky toward tip.

Length 19-22.25 inches; extent 32-36; wing 7.6-8.12; bill 1.9-2.12; height of bill at nostrils .55-.58; tarsus 2.5-2.57; middle toe and claw 2.85-3. The maximum dimensions were taken from an adult male killed on the ice on Irondequoit bay, Monroe county, N. Y., February 22, 1904, which is now in the author's collection.

Field marks. The large size of this grebe will distinguish it at once from our other species; and in summer dress the white sides of its head contrasted with the glossy black crown are very conspicuous at shotgun range, and much farther with a strong glass. Its colors in winter bear a general resemblance to those of the Horned grebe, but the cheeks are not so shining white as in that species.

Distribution. The Holboell grebe is a fairly common transient and winter visitant on the coastal and larger inland waters of New York State. In the interior counties it has been taken mostly when driven by winter storms or the freezing of northern lakes to alight in snow banks or small creeks and is then quite helpless and can often be caught with the hands, or killed with a stick. During the winter of 1903-4 many of these grebes were taken in this manner. A large flight was stranded near Utica and Clinton and many of them were killed. Every spring and fall several of these birds are seen on Lakes Ontario and Canandaigua by the writer, and they are reported as not uncommon on all the larger lakes of the State, excepting those of the Adirondack region, and are regular winter visitants on the shores of Long Island. Sometimes they alight on the smaller ponds. Mr Embury reports one from Woodman's pond, Madison county, taken in April 1900, and another taken October 25, of the same year. One was taken by the late David Scott of Springville, N. Y., on Griffith's pond, Erie county, in November 1892.

Migrations. In the autumn this bird arrives in New York about the middle of October and is sometimes seen in winter wherever there is open water, but is more common late in the fall and during the month of April, when those birds which pass farther south return on their northward journey, leaving us by the middle of May for their breeding grounds in the far north and the interior of British America. There is one very early fall record, a

specimen taken at Niagara Falls, September 20, 1903 [see Blaine, Auk, 21: 276]. Numerous records from all parts of the State occur from October 20 to April 21. The latest in my notebook is of a specimen seen off Charlotte on Lake Ontario, May 30, 1904.

Haunts and habits. The Holboell grebe is even more a bird of the open water than the Horned grebe and is rarely seen in the shallows and weedy sloughs. It swims and dives with great power when pursued and rises from the surface of the water with the same flopping of its feet as the other grebes, but more often makes a long flight when once under way. Late in the spring it may be seen on our waters in its breeding plumage, and is then a bird of striking appearance [see pl. 1].

Colymbus auritus Linnaeus

Horned Grebe

Plate 1

Colymbus auritus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 135
Podiceps cornutus DeKay. Zool. N. Y. 1844. pt 2, p. 274, fig. 305
Colymbus auritus A. O. U. Check List. Ed. 2. 1895. No. 3

Description. *Breeding plumage:* Crests and ruff conspicuous. Crown, chin and ruff glossy greenish black; lores chestnut; *crests and stripe over eyes buffy*, or brownish yellow; upper parts blackish; *secondaries white*; neck, except the black stripe along the back line, *upper breast and sides chestnut red*; lower breast and belly shining white; bill black, with yellow tip; iris carmine, with inner white ring of beading; feet dusky yellowish on the inside. *Winter and immature:* Crests and ruff consist of only slightly lengthened feathers; upper parts grayish black, darkest on the crown and back of the neck; *sides of the head and under parts silky white*, washed on the foreneck, sides and lower belly with ashy gray.

Length 13.5-15 inches; extent 23-25.5; wing 5.6; culmen .9; height of bill at nostril .3; tarsus 1.75; middle toe and claw 2.1.

Field marks. The Horned grebe may be distinguished at once from the Holboell grebe by its smaller size, and, in the summer dress, from both our other grebes by its conspicuous buffy crests. In winter dress its shining white cheeks and slim pointed bill are good marks; and when flying also the large square patch in each wing formed by the white secondaries.

Distribution. This bird called also Hell-diver, Pink-eyed diver, Dipper, and Water-witch, is a common migrant in every county of the State. A few remain in winter on our lakes and rivers as long as they are open, and along the coast of Long Island it is fairly common throughout the winter. In the western part of the State it is perhaps commoner than in the east, and for a short time in April and in early November each year it is fairly abundant. According to Mr Reinecke of Buffalo and Mr Davison of Lockport, it has bred on the shore of Lake Ontario where they have seen the old birds with their young, but I have never seen it in the breeding season, nor any eggs of the species collected in the State.

Migrations. The Horned grebe arrives from the south in considerable numbers from March 20 to April 10. After acquiring its nuptial plumage it passes northward to breed, about the middle of May. By the 10th of October it returns from the north and is quite common till the last of November when the greater number has passed farther south.

Haunts and habits. This grebe is found on all the lakes and larger streams of the State as well as on salt water bays and sounds, preferring the open water to the weedy shallows. It swims rapidly, often timing its exertions with a peculiar jerking motion of the neck. When interested or excited its neck is fully extended with the axis of its head at right angles to the straightened neck, and the body nearly submerged. For this reason it is almost impossible to kill a grebe by gunshot unless it chances to be hit in the head or neck. I do not believe it can "dodge the flash of a gun" as is often asserted, when it is in easy range. Even when black powder is used, the bird can be secured with any good gun loaded with no. 10 shot at a distance from 6 to 8 rods. It is a famous diver however. I have often seen it remain under water for three minutes and cover a distance of at least 30 rods at one dive. It is somewhat gregarious in migration time, when a line of 20 or 30 grebes may often be seen swimming abreast at a distance of a few rods from shore. It is quite possible that they are fishing after the manner of mergansers when in this formation, one individual taking more easily the fish which escape from his comrades. Grebes are rarely

seen on land, but this species and the Holboell grebe are sometimes found on the ice when bays and ponds suddenly freeze in winter. They are sometimes found on the snow far inland in an exhausted condition. Indeed it seems quite impossible for a grebe to take flight either from land or water unless a considerable level surface is before it over which to propel itself both by wings and feet while rising.

Podilymbus podiceps (Linnaeus)

Pied-billed Grebe

Plate 1

Colymbus podiceps Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 136
Hydroka carolinensis DeKay. Zool. N. Y. 1844. pt 2, p. 277, fig. 308
Podilymbus podiceps A. O. U. Check List. Ed. 2. 1895. No. 6

podilym'bus, evidently a contraction of *podicipes* and *colymbus*; *pöd'iceps*, an improperly formed word from *podex*, *podicis*, rump, and *pes*, *pedis*, foot

Description. *Breeding plumage:* Upper parts brownish black; front and sides of the neck brownish gray, with concealed dusky mottlings; a large *black throat patch*; under parts silvery ash, obscurely mottled with blackish, especially on the breast and sides; *bill short and thick*, dull bluish white, with a black band near the middle; eyelids white; iris brown and white; feet greenish black, lead color on the inside. *In winter:* Bill dusky yellowish, with no band; throat whitish, without the black patch. *Young:* Striped with white and buffy about the head.

Length 12-14 inches; extent 22-24.5; wing 4.5-5; bill .85; height of bill at nostrils .4; tarsus 1.5; middle toe and claw 2.15.

Field marks. This bird has a more brownish cast than our other grebes, but the best mark at all seasons is the shape of its bill, which is short and thick--more henlike. In the breeding season the black throat patch and band on the bill are distinctive, while in winter it lacks the shining white cheeks of the Horned grebe, which is our only grebe liable to be confused with the present species.

Distribution. This bird, called also Dabchick, Hell-diver, Dipper, Didapper, and Water-witch, is found throughout New York during the breeding season, whenever it is undisturbed in its favorite haunts. I have noticed it breeding on the marshes of Seneca river, on the bays of Lake Ontario near Rochester, on Canandaigua and Keuka lakes and on

Elk lake near Mt Marcy in the Adirondacks. It has been recorded as a summer resident by Giraud on Long Island; Merriam, in Lewis county; Mearns in the Highlands; Davison in Niagara county; Chapman near New York; Short in western New York, and Fisher at Ossining. It is also reported by correspondents as breeding in Cayuga, Erie, Monroe, Ontario, Orleans, Yates, Onondaga and Fulton counties. It is, however, much less commonly distributed through the State, than formerly, before so many marshy ponds and streams had been drained and our lakes and streams frequented by fishermen and pleasure seekers. During the spring and autumn it is found on all the waters of the State. It is a species of wide distribution in America, ranging from Argentina to Hudson bay.

Migrations. This grebe is a rare winter bird in the southern part of the State, but is mostly a migratory species arriving from the south about the 6th of April in the vicinity of New York and from the 23d of March to the 15th of April in Monroe county and other parts of western New York. Migrants have passed to their breeding grounds from the 1st to the 15th of May and return from the north again the last of August to September 15th. The greater number have departed to the south by the first of November, but an occasional straggler is sometimes found in December and January. I have seen one which was captured in a barnyard watering trough during the first week of February, when the mercury was below zero and the ground was deeply covered with snow.

Haunts and habits. Marshy lakes, ponds and bays and sluggish streams bordered with flags and grown over with pondweed, water crowfoot and eelgrass are the favorite haunts of this species. Here it makes its nest and rears its young. When approached, it sinks gradually out of sight by compressing or expelling the air from its lungs and air sacks or dives with a quick motion of the neck and legs, and swims rapidly beneath the surface to reappear some distance from where it disappeared, or rising among the weeds remains invisible, sometimes with only its nostrils above the water beside some stick or plant, thus completely evading its pursuers. It is rarely found in the open deep water where our other grebes find their

principal subsistence. The note of this bird is a resonant call reminding one somewhat of the Yellow-billed cuckoo note, composed of the syllables cow—cow—cow—cow—cow—cow—cow, repeated several times, the latter syllables being drawn out into froglike gutturals. This is one of the most characteristic sounds of the marshes comparing well with the booming of the bittern and the clattering of the rails as a sound with which all nature lovers should be familiar. It is undoubtedly the love note of the bird, but is sometimes heard during the pleasant days of the fall.

Nest and eggs. The Pied-billed grebe forms its nest of flags and reeds among the thick sedges or cat-tails, but sometimes in a rather exposed position. It usually rests on submerged weeds or rubbish, but sometimes floats on the surface, only slightly anchored to the surrounding stems, and has been known to float away in times of flood with the mother bird incubating her four to eight dull white eggs on her rudely constructed house boat. When the old bird leaves the nest in search of food she usually covers the eggs with weeds, probably to protect them from gulls and other egg-loving birds. The eggs are 1.75 inches in length by 1.2 in width. The young swim as soon as hatched.

Family **GAVIIDAE**

Loons

Order Colymbiformes in Sharpe's Hand-List

Bill straight, sharp, strong, horny and paragnathous; wings strong; primaries 11, 10 being well developed, none emarginate; secondaries numerous, short, the fifth wanting; tarsi much compressed, reticulate, smooth on the rear margin; feet palmate; hind toe partly lateral and connected with inner toe by a lobe; claws normal; tail of 18-20 short, stiff feathers; tibia has a long apophysis; patella small; carotids double; coeca and ambiens present; body broad and flattened; back spotted.

Loons are admirably adapted to the avocation of divers. The form is long and pointed for cleaving the water, the tarsi so narrow that they offer little resistance to forward movement of the legs, and the broad webbed feet take a powerful hold of the water at the backward stroke. They also can change their specific gravity by inhaling or expelling air from their lungs

and air sacs. They make their nests on the ground near the water's edge, and the eggs are two, of an elongated oval, olive or brown in color with spots of brown and blackish. The young are covered with a sooty grayish down, changing to white on the belly. They swim about as soon as hatched. The family consists of only five species, all confined to the holarctic realm.

Gavia immer (Brünnich)

Common Loon

Plate 2

Colymbus immer Brünnich. *Ornithologia Borealis*. 1764. p. 38
Colymbus glacialis DeKay. *Zool. N. Y.* 1844. pt 2, p. 285, fig. 299
Urinator imber A. O. U. Check List. Ed. 2. 1895. No. 7

ga'via from the Italian name of a gull, first applied to loons by Forster in 1788; *immer* from the Swedish *immer* and English *ember*, or *immer*, used in composition with goose for this bird, Ember goose

Description. *Summer plumage:* Head and neck rich greenish black, with purplish reflections; *small patch of shining white streaks on throat, and a larger one on each side of neck*, consisting of raised edges of the feathers so that the streaks may be felt as well as seen; *upper parts black, with a pair of white spots on each feather*, those on the back and scapulars being square, or rectangular, the others oval; under parts pure white; sides of upper breast sharply streaked with black; a dusky band across the belly; bill black, sometimes tipped with yellowish; iris red; feet blackish. *Winter and immature:* Upper parts dusky brown, the feathers edged with grayish; crown and back of neck blackish; sides of head and neck white mixed with grayish; under parts white.

Length 31-36 inches; extent 52; wing 12.5-14.25; culmen 2.75-3; gape 4-4.25; height of bill at nostrils .75-.85; tarsus 3-3.5; middle toe and claw 4.25-5. Females and young have the smaller dimensions, the bill of young especially, being considerably smaller than that of adult.

Distinctive marks. As shown by plate 2, the Common loon may easily be distinguished in breeding plumage from the Red-throated and Black-throated loons by the marked difference in coloration of its head and neck. In winter plumage, the feathers of its upper parts are *marginated* with grayish, while those of the Red-throated loon are *spotted* with white, and the Black-throated loon is decidedly smaller. The bills of the Black-throated and Common loons are very similar in shape, but that of the

Red-throated species is more slender and is slightly concave in the region of the nostrils, which gives it the appearance of being tilted upward from the base. This difference in the bills of our two common species serves as an excellent field mark by which, with the aid of an eight power glass, I have been able to identify the Red-throated loon at the distance of half a mile.

Distribution. This holarctic species, called also Great northern diver, Diver, Big loon, Ember goose, is a common transient visitant on all large bodies of water within New York State, and is often found throughout the winter on the larger lakes and along the shores of Long Island. In 1824, according to Audubon, it was breeding on Cayuga lake, and in 1844, according to DeKay, on Raquet lake. Roosevelt and Minot record it as common in Franklin county up to 1870. Merriam, in 1881, called it a common summer resident of the Adirondack region, and in 1883 found it fairly common at 1st Lake, where a nest with partly incubated eggs was found on June 10th. According to Davison it formerly bred on the southern shore of Lake Ontario, but I have been unable to find satisfactory evidence of its nesting there in recent years. As a summer resident it is now confined to the secluded ponds and lakes of the Adirondacks, being most numerous in the western and southwestern parts of that region. During the summer of 1905, we failed to find it on any of the waters in Essex county, but a few were met with in Franklin, St Lawrence, Herkimer and Hamilton counties, where they still breed. Mr L. L. Merriam writes that it is still a common summer resident on many lakes north of Beaver River.

Migrations. The spring migration of the Common loon begins the first of April in the southern and western portions of the State. It becomes quite common by the middle, or third week of April, and is often seen migrating by day at a considerable elevation, either singly, or in small companies of 6 to 15. On one occasion the writer saw 26 of these birds passing over Canandaigua lake in a scattered company steering toward Lake Ontario. According to Dutcher they leave Long Island in June. They are often seen on Lake Ontario and the larger inland lakes as late as the 20th of June, but by far the larger portion have passed on to their breeding grounds by

the third week in May. They begin to return from the north about the middle of September, and are quite common during October, most of them passing southward by the last of November, many going as far southward as the Gulf of Mexico.

Haunts and habits. The Common loon is rarely seen on ponds of less than several acres extent and is never common except on the larger rivers and lakes where it keeps to the open water and escapes from its pursuers by diving and swimming long distances under water. In this manner it can elude the swiftest oarsman, but when cornered in shallow water, it takes wing and makes a long flight before alighting. Like grebes, it often sinks as if a stone were fastened to it and seems to disappear completely, probably rising with only its bill out of water and so remaining until its pursuers have given up the chase. It is asserted by the best authorities that this bird can evade a gunshot by diving at the flash, and I have no doubt that this is true when black powder is used, but when a modern smokeless rifle is discharged at a loon, he is utterly unable to dodge the shot, even when intently eyeing the gunner all the time. When on land the loon is a very awkward fellow, as his name would indicate, it being derived from the old English loom, or lumme, meaning a clumsy fellow or lummox, and probably allied to the word lame. He stands with his body erect and his tarsi usually resting on the ground. Perhaps it would be more correct to say he sits up like a startled woodchuck. He can not walk, but progresses by tumbling forward and flopping his wings and pushing his feet in a most ungainly manner. The scream of the loon, uttered at evening, or on the approach of a storm, has to my ear, an unearthly and mournful tone resembling somewhat the distant howl of a wolf. It is a penetrating note, loud and weird, delivered with a prolonged rising inflection, dropping at the end, resembling the syllables *a^{oo} oo*, or as is often written *o'-ō-ōōh*. Its laughter, however, is of a more pleasing quality, like the syllables *hōō, hōō, hōō, hōō, hōō*, uttered in a peculiarly vibrating tremulo.

Food. The food of the loon consists almost entirely of fish, which it catches by swimming after them beneath the surface of the water.

Nests and eggs. This bird lays its eggs close to the margin of the lake where it can easily slide into the water at the approach of danger. The nest is a mere depression in the rock or ground and its eggs, usually two in number, are about the size of a goose egg, grayish olive-brown in color, spotted with brownish black. The young are covered with a soft down, sooty brown in color and leave the nest as soon as hatched. The time for fresh eggs is from May 15 to June 5.

Gavia arctica (Linnaeus)

Black-throated Loon

Plate 2

Colymbus arcticus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 135

Urinator arcticus A. O. U. Check List. Ed. 2. 1895. No. 9

arc'tica, arctic

Distinctive marks. This bird bears a general resemblance to the Common loon, but is smaller. In summer the *upper part of the head and back of the neck is of a clear bluish gray*, gradually fading into *black on the throat and foreneck*. The white streaks on the sides of its neck form a *lengthwise* patch, and the *white spots on its upper parts are more confined to restricted areas* as shown in the plate. In *winter*, there is a much closer resemblance, but the Black-throated diver has a much wider edging of bluish gray on the feathers of its upper parts, which gives it a peculiar "reticulated or scaly appearance."

Length 27-30 inches; wing 12-13; culmen 2.4-2.5; gape 3.4; height of bill at nostril .65; tarsus 2.9.

This arctic species is extremely rare in New York, the only specimen from this State known to exist is recorded by Dutcher in the *Auk*, volume 10, page 265. "The bird was killed by Gus Merritt of City Island, L. I., on Saturday morning, April 29, 1893, between Sands Point lighthouse and Execution lighthouse. He was one of a party of young men who left City Island in the middle of the night to lie in line for ducks. At daylight on Saturday morning the bird flew from the east and was killed by him as it passed over his boat." It was a male in full plumage.

According to Mr F. S. Webster, he once saw a female of this species which had been shot by a gunner on the Hudson river near Troy, N. Y. The first United States record which has come to my notice, is of the specimen which was shot in Sandusky Bay, Ohio, in 1880, *see* Wheaton's *Birds of Ohio*, page 565. There are three records for Lake Ontario, near Toronto. A pair from this locality was sent to the Paris Exposition and a third specimen was captured off Mimico, May 22, 1889, recorded by Fleming [Auk, 17: 176].

Lawrence, in 1866 included this species in his list of *Birds of New York and Vicinity*, but there is no specimen in his collection.

Gavia stellata (Pontoppidan)

(*Gavia lumme* on plate)

Red-throated Loon

Plate 2

Colymbus stellatus Pontoppidan. Danske Atlas. 1763. 1:621

Colymbus septentrionalis DeKay. Zool. N. Y. 1844. pt 2, p. 286, fig. 300

Urinator lumme A. O. U. Check List. Ed. 2. 1895. No. 11

stellata, Lat., starred or spotted

Description. Summer plumage: Crown and back of the neck black with greenish gloss; back of neck and sides of breast sharply streaked with white; upper *throat and sides of head and neck bluish gray*; a long triangular *patch of chestnut on throat*; upper parts brownish black spotted with white; breast and belly white; lower belly and longer tail coverts dusky; bill and feet blackish; iris red. *Winter and immature:* Crown and back of neck ashy gray; upper parts dusky grayish profusely spotted with white; no throat patch; under parts white; the bill of female and young considerably more slender.

Length 25 inches; extent 44; wing 11.5; culmen 2; gape 3; height of bill at nostril .5; tarsus 2.75.

Distinctive marks. *See* remarks on Common loon, page 99, 100; also plate 2.

Distribution. The Red-throated loon, Red-throated diver, Sprat loon, or Scape-grace, is fairly common along the shores of Long Island and Lake Ontario. It occurs principally as a transient visitant, but is often found

throughout the winter. On the smaller lakes it is occasionally seen, but must be regarded as decidedly less abundant than the Common loon. DeKay and Giraud considered it as comparatively rare; Rathbun and Chapman as fairly common, while the other local lists have recorded it as a rare, or uncommon species. I have frequently observed it on Canandaigua lake, and on Lake Ontario off the Charlotte harbor where it is sometimes decidedly common. In severe winters when the lake freezes, these birds like the grebes, are often taken unawares and left stranded on the ice apparently unable to rise, and flounder over the ice and snow in a helpless condition till they are either captured or die from exposure. On January 10th, 1885, a bird in this condition was captured by two wood choppers at Adams Basin. On December 22, 1903, another specimen under very similar conditions was taken in Bergen swamp, 18 miles south of Lake Ontario, and in February of the same year a specimen was captured on the ice and brought to the Park Aviary in Rochester.

This is a holarctic species breeding from Scotland, New Brunswick, and Manitoba to high latitudes, and migrates southward in winter nearly as far as the Common loon.

Migrations. The late David Bruce of Brockport, stated that he had found this bird on Lake Ontario during every month of the year. It is mainly a transient visitant, however, arriving from the north from September 19 to the last of October and passing southward about the first of December. The few which remain all winter are joined by spring migrants the latter part of March, the greater number of these passing on to their breeding grounds in the north before the first of June. Like many of the waterfowl, however, this loon is often found loitering on the lake long after the breeding season has begun, but there is not the slightest evidence to my knowledge of its ever nesting within our borders. Mr George F. Guelf of Brockport reports specimens taken June 13, 1899 (♂); June 22, 1899 (♀); and July 17, 1896 (in molting plumage).

Family **ALCIDAE***Auks, Guillemots etc.*

Order Alciformes in Sharpe's Hand-List

Feet palmate, hind toe wanting; tarsi mostly reticulate, heel joint naked; bill variable, in some species curiously enlarged, and ornamented in the breeding season; tail short, of 12-16 (rarely 18) feathers; lores feathered; oil gland tufted; no apophysis of tibia; altricial, i.e. their young are fed in the nest by their parents; ptilopaedic, or mostly covered with down; nidicolous, i.e. remaining in the nest for some time; eggs one, or few, very large.

This is a family of holarctic distribution, consisting of about 30 members, almost exclusively maritime in habitat. They are highly gregarious in the breeding season and return with great punctuality to their nesting sites on the precipitous cliffs and ledges of northern shores. Famous breeding grounds are the Hebrides and other islands of Scotland, Norway, Iceland, Greenland, Labrador, Alaska, and Bird Rock in the St Lawrence gulf. The southernmost breeding stations in eastern America are on the coast of Maine. The eggs are of commercial value and are gathered in immense numbers on the rocky islands of Great Britain and Norway.

Fratercula arctica* (Linnaeus)Puffin*

Plate 3

Alca arctica Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 130*Mormon arcticus* DeKay. Zool. N. Y. 1844. pt 2, p. 282, fig. 301*Fratercula arctica* A. O. U. Check List. Ed. 2. 1895. No. 13

fratër'cula, from Lat. *fraterculare*, to swell up, probably from the pouting appearance of standing puffins, somewhat resembling the attitude of pouter pigeons; *arc'tica*, arctic

Description. *Bill extremely deep. Adult:* Head, neck and upper parts blackish, the head and front of the neck browner; sides of the head, throat and a narrow collar on the nape white or grayish; breast and belly white. *Breeding plumage:* Bill much enlarged and brilliantly colored; feet and eyelids orange-red; a bluish conical projection on the upper eyelids; less white on the neck. Length 13 inches; wing 6; tarsus 1; bill 1.85; depth of bill in winter 1.5.

The Puffin, Sea parrot or Tinker is recorded by Giraud, DeKay, Lawrence and Chapman as a rare winter visitant to the shores of Long Island. Mr L. S. Foster reported a specimen from Center Moriches, Suffolk county, December 15, 1882; and Dr Braislin, from Montauk, March 30, 1902 [see Auk 20: 50]. The southernmost breeding station of this species is on the coast of Maine, and it rarely migrates further south than the shores of Cape Cod.

Cepphus grylle (Linnaeus)

Black Guillemot

Plate 3

Alca grylle Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 130

Uria grylle DeKay. Zool. N. Y. 1844. pt 2, p. 278, fig. 303

Cepphus grylle A. O. U. Check List. Ed. 2. 1895. No. 27

cēpph'us, Gr. κέπφος, some sea bird; *gryl'le*, Swedish for this bird

Description. *In winter:* Upper parts blackish, all the feathers tipped with white giving a *marbled appearance*; lesser wing coverts, terminal half of greater coverts and lining of the wing white, the white coverts forming a *large white patch*; under parts white. *Young:* Similar, but the under parts mottled with black. *Breeding plumage:* Sooty black with greenish reflections above; wings as in winter. Length 13 inches; wing 6.25; bill 1.2; tarsus 1.25.

The Black guillemot, sometimes called Sea pigeon is an uncommon winter visitant south of Cape Cod. It is mentioned without definite records by Giraud and DeKay, and is certainly very rare in this State. There is one specimen from the Lawrence Collection, labeled "Long Island" in Mr Dutcher's collection, number 1959. The late David Bruce of Brockport, N. Y., writes that he has several times picked up the wings of this species in the winter drift on the shore of Lake Ontario, and that a specimen in the mottled plumage was taken on Lake Ontario in February, 1888, by Mr Skillen of Troutberg.

Cepphus mandti (Lichtenstein)

Mandt Guillemot

Distinctive marks. Like the Black guillemot, but the *greater wing coverts are white to their base*, whereas *C. grylle* has at least the basal half of the greater coverts black, sometimes showing as a black line between the white of the greater and lesser coverts.

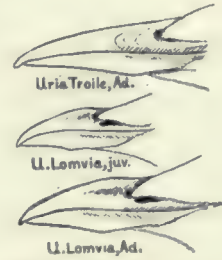
This holarctic species is more northern in distribution than the preceding, and rarely wanders farther south than Maine or Massachusetts. It breeds on Hudson bay, and Mr Fleming and others believe that the guillemots which are rarely taken on Lake Ontario are of this species. The late David Bruce has labelled a pair of *Cephi* in the Mechanics Institute Collection in Rochester "Lake Ontario," but his notes do not indicate that he actually took them on Lake Ontario. He does state however that he has found their remains on the lake shore in the spring drift.

***Uria troile* (Linnaeus)**

Murre

Distinctive marks. Similar in color to Brännich murre but in breeding plumage the top of head and hind neck smoky brown; *depth of bill at angle less than one third the culmen.* See figure.

The Common murre is confined to the north Atlantic, and migrates as far as southern New England in winter, but among the scores of murres from New York which I have examined no specimen of *troile* can be found. DeKay, Giraud and Lawrence record this species from New York, as many later observers have done, but the records probably refer to young *lomvia*. It is a strange fact that no specimen of *troile* from New York can be secured but the conclusion must be that it does not migrate as far south as *lomvia*, or that our specimens of *lomvia* are from Hudson bay and the Arctic ocean.



***Uria lomvia* (Linnaeus)**

Brännich Murre

Plate 3

Alca lomvia Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 130

Uria lomvia A. O. U. Check List. Ed. 2. 1895. No. 31

u'ria, Gr. οὔρια, some diving bird; *lom'via*, Faroese name

Description. *In winter:* Upper parts, wings and tail black; tips of secondaries and under parts white; *throat and sides of the neck mixed with grayish white.* *Breeding plumage:* Head and neck sooty black, the front of the neck browner. Length 16.5–16.8 inches; extent 30–31; wing 8.4; bill 1.25; depth of bill .48; tarsus 1.3; middle toe and claw 1.7. Young birds have smaller bills.

This species, known also as the Thick-billed guillemot, is the commonest member of the Auk family on the waters of New York State, and seems to be growing commoner in recent years, especially in the interior of the State, where it has been almost a regular winter visitant on the larger lakes for several years. Most of the specimens taken in the interior have been emaciated and evidently unable to obtain food, but some were able to survive till spring, and possibly would have returned to their breeding

grounds. This bird has been mistaken for *U. troile* so often that we would call attention to the relative dimensions of the two species, specially of the bills, [see figure]. The principal records of specimens examined follow:

Auburn, N. Y. Jan. 4, 1854. (William Hopkins). Dr Brewer, Bost. Soc. Nat. Hist.

Proc. 1856. 5: 13

Lawrence, N. Y. List. 1866

Amagansett, L. I. Dec. 1, 1883. (Lawrence). Dutcher, Long Island Notes

South Oyster Bay, L. I. Winter 1884. (Verity). " "

Smith's Point, L. I. Mar. 23, 1884. (Albin). " "

Rockaway Beach, L. I. Feb. 20, 1884. (Weston). " "

Coney Island, L. I. Jan. 21, 1884. (Bebeusee). " "

Bellport, L. I. Feb. 2, 1884. (Monsell). " "

Smith's Point, L. I. Jan. 30, 1884. (Albin). " "

Southampton, L. I. Jan. 31, 1884. (Phillips). " "

Ditch Plain, L. I. Jan. 5, 1884. (Stratton). " "

Smith's Point, L. I. Jan. 19, 1884. (Albin). " "

Amagansett, L. I. Jan. 17, 1884. (Barnes). " "

Southampton, L. I. Jan. 15, 1884. (Burnett). " "

Shinnecock bay, L. I. Jan. 8, 1884. (Carter). " "

Montauk Point, L. I. Jan. 4, 1884. (♂). " "

Atlanticville, L. I. Dec. 29, 1884. (Vail). " "

Shinnecock bay, L. I. Jan. 27, 1885. (Carter). " "

Atlanticville, L. I. Feb. 15, 20, 1885. (Pairs seen 5 miles off. Vail). Dutcher

Springs, L. I. Dec. 1892. (2). (Parsons). Dutcher

Far Rockaway, L. I. Jan. 1, 1891. (Howell, c). "

" Jan. 7, 1891. (Frazer). "

Montauk, L. I. Jan. 1891. (Scott, nos. dead). "

Miller's Place, L. I. Winter 1891. (Helme, nos.). "

Shelter Island, L. I. Jan. 8, 17, 1891. (2 ♀). Worthington, Auk. 1885. 2: 39

Lake Champlain, N. Y. Dec. 1893. (Numerous). Fleming, 4th Internat. Ornith.

Cong. Proc. p. 520

Lake George, N. Y. Dec. 12, 1893. (2). A. K. Fisher

Ossining, N. Y. Dec. 11, 1894. A. K. Fisher

Baldwinsville, N. Y. Dec. 15, 1893. W. M. Beauchamp

Booneville, N. Y. Dec. 5, 15, 25, 1894. Auk, 12: 177

Roslyn, N. Y. Dec. 24, 1894. S. H. West

Buffalo, N. Y. Nov. and Dec. 1894. Savage

Pleasant Valley, Dutchess co., N. Y. Dec. 1894. Horton

Utica, N. Y. Dec. 24, 1894. Auk. 12: 177; 14: 226

- Carmel, Putnam co., N. Y. Dec. 1895. (5). W. A. Mead
 Ithaca, N. Y. Dec. 14, 1895. (H. G. Wilson). Dr H. D. Reed
 " Dec. 16, 1895. Cornell Univ. Coll.
 Lake Ontario, N. Y. Dec. 17, 1895. George F. Guelf
 Johnstown, N. Y. Winter 1894-95. Auk, 12: 290
 White lake, Oneida co., N. Y. Dec. 13, 1895. Fleming, 4th Internat. Ornith. Cong. Proc. p. 532
 Seneca lake, N. Y. Dec. 23, 1895; May 1896; Dec. 26, 1896; nos. winter 1896. Chapman, Auk, 14: 202
 Niagara Falls, N. Y. Dec. 23, 1896. Fleming, 4th Internat. Ornith. Cong. Proc. p. 533
 Penn Yan, N. Y. Dec. 20, 1896. Verdi Burtch
 Canandaigua, N. Y. Dec. 20, 1897. A. P. Wilbur
 Murray, Orleans co., N. Y. Mar. 1897. Posson, Auk, 16: 193
 Monroe co., N. Y. Several specimens mounted at Ward's. Truman R. Taylor
 Ithaca, N. Y. Winter 1899. L. A. Fuertes
 " Nov. 27, 1899. (♀). Cornell Univ. Coll. 3099
 Lake Ontario, Monroe co., N. Y. Dec. 4, 1899. George F. Guelf
 Rochester, N. Y. Nov. 27, Dec. 2, 1900. (4). E. H. Eaton
 Chateaugay lake, Clinton co., N. Y. Dec. 24, 1900. Shattuck, Auk, 18: 199
 Lake Earlville, Madison co., N. Y. Nov. 26, 1900. G. C. Embury
 Lowville, Lewis co., N. Y. Nov. 29, 1900. Miller, Auk, 18: 188
 Redwood, Jefferson co., N. Y. Dec. 4, 1900
 Rockaway, N. Y. Dec. 2, 1900. Fleming, 4th Internat. Ornith. Cong. Proc. p. 536
 Erie co., N. Y. Dec. 14, 1900. James Savage
 Ithaca, N. Y. Dec. 19, 1901. Cornell Univ. Coll.
 Cayuga, N. Y. 1900-Apr. 1903. (3). Foster Parker Collection
 Sag Harbor, L. I. Dec. 6, 1901. Braislin, Auk, 20: 51
 Rockaway Beach, L. I. Dec. 26, 1901. " "
 Amagansett, L. I. Dec. 30, 1901; Mar. 2, 1902. Braislin, Auk 20: 51
 Fair Haven, N. Y. Dec. 11, 1902. L. O. Ashbury
 Newton Falls, N. Y. Dec. 17, 1903. "
 Waterford, N. Y. Feb. 25, 1904. State Museum Collection
 Lake Ontario, Monroe co., N. Y. wv, oc. David Bruce
 Rockaway, L. I. Dec. 14, 1902
 Blooming Grove, Rensselaer co., N. Y. Dec. 5, 1901. State Museum
 Long Island, N. Y. wv "Regular in recent years." Braislin, Lin. Soc. N. Y. Proc. 1907. p. 34
 Cincinnatus, Cortland co., N. Y. Dec. 2, 1907. (1 shot). H. C. Higgins
 Hudson river, near Albany, N. Y. Dec. 1907. (2 shot)

Alca torda Linnaeus*Razor-billed Auk*

Plate 3

Alca torda Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 130

DeKay. Zool. N. Y. 1844. pt 2, p. 283, fig. 304

A. O. U. Check List. Ed. 2. 1895. No. 32

al'ca, Icelandic *alka*, auk; *tor'da* from *tord* the name of the bird (Coues)

Description. *Breeding plumage:* Head, neck and upper parts black, deep brown on the sides of head and throat, sunken line of white from the eye to base of bill; tips of secondaries and under parts white; bill and feet black, the bill ringed with white. *Winter and young:* Duller, more white on neck.

Length 16-18.5 inches; extent 25-27; wing 7.75; tail 3.5; graduated about 1.25; bill 1.3, greatest depth of bill .9; gape 2.25; tarsus 1.25; middle toe and claw 2. Young smaller than adults, with slender bills.

The Razor-bill, or Tinker, inhabits the coast of the north Atlantic, on the American side, breeding from Grand Manan and the Magdalens to high latitudes. It is an uncommon winter visitant on the shores of Long Island, and purely accidental on our inland waters. Most of the specimens taken have been found dead or exhausted on the shore. The principal dates are as follows:

Center Moriches, L. I. Mar. 5, 1878. Collection of Robert Lawrence. Dutcher, Long Island Notes

Southampton, L. I. Jan. 15, 1884. Dead. (Burnett). Auk, 2: 38. Dutcher, Long Island Notes

Smith's Point, L. I. Feb. 2, 1884. Dead. (Albin). Auk, 2: 38. Dutcher, Long Island Notes

Southampton, L. I. Feb. 6, 1884. Dead. (Green). Auk, 2: 38. Dutcher, Long Island Notes

Amagansett, L. I. Nov. 25, 1884. (Edwards). Dutcher, Long Island Notes

Bellport, L. I. Feb. 2, 1885. (W. E. T. Smith). " "

Quogue, L. I. Dec. 2, 1885. ♂ (Jessup). " "

Montauk Point, L. I. Dec. 3, 1886. (Scott, c off the point). Dutcher, Long Island Notes

Montauk Point, L. I. Dec. 10, 1886. (Helme, "Active wave"). Dutcher, Long Island Notes

Sag Harbor, L. I. Dec. 10, 1886. (2). (Helme). Dutcher, Long Island Notes

Southold, L. I. Jan. 26, 1887. (Worthington). " "

Ditch Plain, L. I. Dec. 1887. (Stratton). Dutcher, Long Island Notes
 Montauk, L. I. wv, oc. (10-15 flocks). (Scott). " "
 Montauk Point, L. I. Jan. 6, 1887. L. S. Foster
 Gardiners Island, L. I. Jan. 20, 1890. Dead. (Lester). Dutcher
 Saratoga lake, N. Y. Nov. 26, 1893. (2 taken). S. R. Ingersoll; A. S. Brower
 Montauk Point, L. I. Nov. 14, 1901. Braislin, Auk, 20: 51
 Rockaway, L. I. "Regular," Nov. 2-Feb. 6. Braislin, Lin. Soc. N. Y. Proc. 1907. p. 34

Alle alle (Linnaeus)

Dovekie

Plate 3

Alca alle Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 131
Mergulus alle DeKay. Zool. N. Y. 1844. pt 2, p. 280, fig. 302
Alle alle A. O. U. Check List. Ed. 2. 1895. No. 34

al'le, Swedish name of this bird

Description. *Summer plumage:* Head, neck and upper parts sooty black, the front of the neck and breast browner; secondaries tipped with white and the scapulars streaked with the same; belly white. *Winter and immature:* Similar, but the throat whitish, and sometimes a grayish collar on the neck. Length 8 inches; wing 4.5; bill .5; tarsus .7.

This little bird, called also Sea dove, Sea pigeon, Greenland dove and Ice bird, is an irregular winter visitor to the shores of Long Island and New York bay. Specimens are found on the shore nearly every winter, dead or in an exhausted condition. Off the coast it is frequently observed from the decks of passing steamers. Like the Brünnich murre it sometimes straggles up the St Lawrence to Lake Ontario. There is one record for Toronto, November 18, 1901 [*see* Ames, Auk, 19: 94]. The only specimen which I have found from the interior of New York State was picked up in a garden at Sweden, about 15 miles from Lake Ontario and died soon after being found. The following records in recent years are worthy of note:

Long Island. oc, wv. Giraud List. 1844. p. 375
 New York State. Rare on coast. DeKay List. 1844. p. 281
 New York and vicinity. Occurs. Lawrence List, 1866
 Center Moriches, L. I. Jan. 10, 1878. (R. B. Lawrence). Forest and Stream, 10: 235
 " Jan. 11, 1878. Berier, Forest and Stream, 10: 37
 West Neck creek, L. I. Nov. 18, 1879. ♂. (Worthington). Dutcher, Notes
 Center Moriches, L. I. Dec. 23, 1881; Nov. 1882. Dutcher, Auk, 1: 35
 Bayport, L. I. Nov. 1882

- Fire Island Light, L. I. Dec. 7, 1882. ♀
 Long Island. Nov. 25, 1884; Feb. 6, 1884. Dutcher Collection
 Sag Harbor, L. I. About 1884. (Several dead. Lucas and Buck). Dutcher, Notes
 Amagansett, L. I. Nov. 1885. (Byram). Dutcher, Notes
 " Mar. 24, 1884. Dutcher, Auk, 2: 38. Braislin, Lin. Soc. N. Y. Proc.
 1907. p. 34
 Montauk, L. I. Sept. 8, 1886. A. H. Helme
 Outer beach, L. I. Nov. 23, 1891. (2). (R. B. Lawrence). Dutcher, Notes
 L. I. Nov. 28, 1891. ♂. (W. W. Wilson). "
 Freeport, L. I. Account of 1 taken by C. H. Scott. "
 L. I. Dec. 6, 1891. Account of ♂ taken. (Frazer). "
 L. I. Dec. 8, 1891. 1 seen by and 3 reported. (N. T. Lawrence). Dutcher
 Jamaica bay, L. I. About Dec. 18, 1891. (C. Glier). Dutcher, Notes
 Sweden, Monroe co., N. Y. Nov. 1892. David Bruce
 Montauk, L. I. Nov. 27, 1893. (3). (Scott). Dutcher, Notes
 Ossining, N. Y. Av. (2)
 " Dec. 5, 1898. Dr A. K. Fisher
 Amagansett, L. I. Dec. 14, 1901. (2). Braislin, Auk, 20: 51
 Babylon, L. I. Jan. 15, 1903. Burtis, Auk, 20: 209
 New York, N. Y. Often found dead, 1900. L. S. Foster
 Hither Plain, L. I. Dec. 31, 1906. (Baker). Braislin, Auk, 24: 186-87

Order LONGIPENNES

Long-winged Swimmers

Order Lariformes, Sharpe's Hand-List

Wings long and pointed; nostrils *lateral and open*; hallux small (sometimes rudimentary), free and elevated; tail usually long, of 12 feathers; primaries 11, only 10 developed; fifth secondary wanting; legs comparatively free and inserted near middle of body; tarsus partly scutellate, otherwise reticulate; tibiae bare for a short distance; front toes palmate; palate schizognathous; no basipterygoids; nasals *schizorhinal*; 15 cervicals; furcular hypocleidium present; syringeal muscles one pair; esophagus capacious; cloaca large; plumage aftershafted; oil gland tufted; eggs few, usually 3; ptilopaedic, altricial and nidicolous in nature; mostly piscivorous in diet; cosmopolitan in distribution; maritime, lacustrine or fluviatile in habitat; shrill or raucous in voice; volucral in habit.

This order resembles most nearly the tube-nosed swimmers of all the natatorial birds, but the character of the nostrils easily distinguishes them without reference to internal anatomy. The pterylosis and osteology of the group also show some affinity to Limicolae and Alcidae.

Family STERCORARIIDAE

Skuas and Jaegers

Bill epignathous, the tip of the upper mandible being decidedly curved and furnished with a *distinct nail* or dentrum; a *horny cere* is saddled over the opening of the nostrils; claws strong, sharp, and curved; primaries stiff and rounded; *central tail feathers* more or less *elongated*; coeca much larger than in other Longipennes; sternum with only a single notch on each side instead of two as in Laridae. There is also a general tendency to a sooty blackish coloration of the upper parts in the adult, to a gilding of the head and hind neck, and to a whitening of the shafts of the flight feathers toward their bases; while the young in all are noticeably smaller than the adults and profusely waved or streaked with rufous, requiring years to reach the full dimensions and plumage of the adult. In habit the skuas or jaegers are dashing, intrepid and predatory, strong and vigorous of body and wings. Armed with beak and claws which mimic the birds of prey, they harass their weaker brethren of the gull family and compel them to drop, or disgorge, their prey which is snatched up with great dexterity. This habit has given them the names in common use among sailors—jaegers (hunters, sea-hawks, teasers, boat swains, and, by a misconception, dunghunters).

This is a family of only five or six species, native to high latitudes in both hemispheres and wandering widely in winter, some of the holarctic species passing far beyond the equator in their migrations. In the breeding season their habits change, and they proceed inland along the Arctic coast to nest upon the tundra. Their food then consists largely of insects, small mammals, and other animals, and upon these they feed their young.

Megalestris skua (Brünnich)*Skua*

Plate 4

Catharacta skua Brünnich. Ornithologia Borealis. 1764. 33

Megalestris skua A. O. U. Check List. Ed. 2. 1895. No. 35

meg'ales'tris, Gr. μέγας, large and ληστής, pirate craft; *sku'a* from the Faroese or Norwegian name of this bird

Description. *Blackish brown*, the feathers more or less tipped *with chestnut spots*; shafts of the wing and tail feathers white, excepting toward the tip; more or less streaked with white and chestnut around the neck;

under parts lighter; bill and feet blackish; iris brown; young similar but more streaked about the head and neck.

Length 20-22 inches; wing 16; tail 6; central feather elongated .5; bill 2.1; gape 3; tarsus 2.7; middle toe and claw 3.1; the young much less, the wing being of different shape and only 12.25 in length.

The Skua, or Sea-hawk may be recognized from the other jaegers by its greater size and robustness. It is a rare bird on this side of the Atlantic, although it may breed in the region of Baffin bay. It has been taken at least three times off the coast of Massachusetts. There are three records for this State, the first being recorded by William Dutcher, *Auk*, 3: 432. The bird was found dead on the beach by Mr M. F. King, of the Amagansett Life Saving Station, Suffolk county, N. Y., on March 17, 1886. It had undoubtedly been washed ashore and frozen in the ice during the gale of January 9th preceding. The second specimen was secured on Niagara river, in the spring of 1886, by the late Charles Linden of Buffalo, N. Y., and is reported in Bergtold's *List of the Birds of Buffalo and Vicinity*, also in the *Auk*, 6: 331. A third specimen struck the Montauk Point Light August 10, 1896. Its wing was sent to the Biological Survey in Washington where it was identified by Dr Fisher.

Stercorarius pomarinus (Temminck)

Pomarine Jaeger

Plate 4

Larus pomarinus Temminck. Manuel d'Ornithologie. 1815. 514
Lestris pomarinus DeKay. Zool. N. Y. 1844. pt 2, p. 316, fig. 292
Stercorarius pomarinus A. O. U. Check List. Ed. 2. 1895. No. 36

stercora'rius, Lat., pertaining to dung; *pomari'nus*, incorrectly formed for
pomatorhinus, Gr. *πῶμα*, *πῶματος*, a flap, and *ῥίς*, *ῥινός*, nose,
alluding to the saddle or cere

Description. *Adult breeding plumage:* Upper parts brownish black or sooty slate; under parts white; neck all the way around white, except the pointed feathers which are yellow; crown, lores and sides of chin black; bill horn color, black at tip; feet black; upper part of tarsus light bluish; iris brown. *Dark phase:* Nearly uniform blackish brown, black on the crown and lightening to smoky brown on the belly; a slight gilding of the

feathers on the sides of the neck; bases of the wing feathers light. This melanotic plumage is usually confined to the immature birds, but may be found in adults, and all stages or gradations between the dark phase described above and the normal light plumage may be found. *Intermediate plumage*: Dark band of spots across the breast, sometimes broadening till the whole breast appears brown, mottled with white; sides barred with brown; under and upper tail coverts barred with white; central tail feathers project one inch; feet blotched with chrome yellow. Otherwise like the adult. *Young*: Considerably smaller than the adult; bill and feet much smaller and weaker; central tail feathers projecting only one half inch or less; body transversely waved with dull rufous, becoming broad bars on the flanks and the tail coverts; brownish black prevailing on the back and wing coverts; rufous predominating on neck and under parts; wings and tail brownish black; a dusky spot in front of the eye; feet yellow; toes black. The different phases of plumage grade into each other imperceptibly.

Length 20-23 inches; extent 48; wing 14; tail 8-9; bill 1.45-1.75; tarsus 2; tibia, bare .75; middle toe and claw 1.9-2; young less, in all dimensions, wing 12.5; bill 1.25; tarsus 1.69, the tail varying from 5.5 to 6.5 inches; the tail of the adult, exclusive of the elongated feathers, 5 inches.

This species may be distinguished from the other jaegers by its greater size, and by the shape of the central tail feathers, which are quite blunt and twisted on their axes so that the vanes at the tips are nearly vertical.

The Pomarine jaeger is a regular transient visitant along our Atlantic seaboard, occurring in June and July (Chapman), but more common in the fall from August 6th to October 30th. It is also a rare visitant to the Great Lakes. Their appearance in numbers on our coast is said to depend largely on the abundance of small bluefish. Migration records are as follows:

- Rockaway, L. I. Sept. 19, 1875. (1). N. T. Lawrence, Forest and Stream, 10: 235
 " Aug. 30-Oct. 15, 1872. Numerous. " "
 Ossining, N. Y. Oct. 18, 1877. Dr A. K. Fisher
 Long Island, N. Y. Aug. 11, 1888. L. S. Foster
 Little Gull Island, L. I. Aug. 6-16, 1888. (common). Dutcher, Auk, 6: 125
 Lake Ontario, Monroe co., N. Y. wv, rare. Truman R. Taylor
 Buffalo, N. Y. (2). (Buffalo Soc. Nat. Sci. Collection and R. H. Reed collection).
 James H. Savage
 Shinnecock bay, L. I. Oct. 9, 1885. (Carter). Dutcher, Long Island Notes
 Amityville, L. I. 1885. " "
 Montauk, L. I. Sept. 18, 1888. (Scott). " "
 Little Gull Island, L. I. Sept. 18, 1888. (50). (Field). "

Little Gull Island, L. I.	Sept. 20, 1888.	(15).	(Field).	Dutcher Long Island Notes
"	Oct. 7, 1888.	"	"	"
Montauk, L. I.	Oct. 30, 1889.	(Scott).	"	"
Rockaway Inlet, L. I.	Aug. 2, 1891.	(7).	(Marshall).	"
"	Aug. 8, 1891.	(2).	"	"

Stercorarius parasiticus (Linnaeus)

Parasitic Jaeger

Plate 4

Larus parasiticus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:136
Lestris richardsonii DeKay. Zool. N. Y. 1844. pt 2, p. 215, fig. 293
Stercorarius parasiticus A. O. U. Check List. Ed. 2. 1895. No. 37

parasiticus, Lat., parasitic

Description. Very similar in color to the Pomarine jaeger, perhaps a more slaty or brownish tinge on the upper parts in the adult. The different stages of plumage like that species; in size, however, decidedly smaller; the *central tail feathers straight and pointed, projecting from 3 to 4 inches*. The young are similar to those of the next species and must be distinguished by their relative dimensions, especially the structure of the bill; and the color of the shafts of the *primaries* which are *white with no abrupt change to brownish*. The color is also more buffy or rusty, and the size larger than in the young of *longicaudus*.

Length 17-20 inches; wing 12.8-13.75; tail 5-6, with central feathers projecting 3 or 4 inches farther; bill exposed 1.24-1.3; tarsus 1.60-1.75; tibia, bare .5; middle toe and claw 1.62-1.8. *Young* much less, the central tail feathers projecting .75 to 2.5 inches, according to age; wing 12.4-12.8; exposed culmen 1.22.

The Parasitic jaeger is a fairly common or at least a regular transient visitant on the coast of this State, appearing from the 15th of June to November 15th. Other names for it are Richardson jaeger, Arctic hawk gull, Black-toed gull, Boatswain, Marling-spike, Teaser.

Five specimens from the interior of the State were all young birds of the year, and at least two of them seemed to be in a very exhausted condition as they would not take wing when approached. The Monroe county bird was found on the shore of the lake, the Herkimer county bird on the water. Migration records are as follows:

Rockaway, L. I. June 1873. Lawrence, Forest and Stream, 10: 235
 Gardiners Island, L. I. Aug. 1884. (Lucas & Buck). Dutcher
 Shinnecock bay, L. I. Oct. 9, 1885. ♀ Dutcher

- Joc's lake, Herkimer co., N. Y. Aug. 27, 1886. Juvenal. Ralph & Bagg, p. 104
 Niagara river, N. Y. Sept. 1887. Juvenal. Harry Lansing
 Little Gull Island, L. I. Aug. 6-16, 1888. (common). Dutcher, Auk, 6: 125
 " Sept. 18, 1888. (50). (Field). "
 " Sept. 20, 1888. (15). " "
 " Aug. 24, 1889. (2). " "
 Canoe lake, L. I. Aug. 25, 1890. "
 South Oyster Bay, L. I. Sept. 10, 1891. ♂. "
 Rockaway, L. I. July 29, 1893. (3). "
 Montauk, L. I. Nov. 15, 1894. "
 Buffalo, N. Y. Oct. 2, 1895. James Savage
 Lake Ontario, Monroe co., N. Y. Nov. 10, 1897. George Guelph
 Buffalo, N. Y. About Oct. 25, 1907. (Grieb). James Savage
 Long Island, N. Y. "Apr. 30 (Rockaway); Aug. 6-Nov. 9 (Amityville)." Braislin, p. 35

***Stercorarius longicaudus* Vieillot**

Long-tailed Jaeger

Plate 4

- Stercorarius longicaudus* Vieillot. Nouveau Dictionnaire. 1819. 30: 157
Lestris buffoni (?) DeKay. Zool. N. Y. 1844. pt 2, p. 314, fig. 291
Stercorarius longicaudus A. O. U. Check List. Ed. 2. 1895. No. 38

lon'gicau'dus, Lat., *longus*, long, and *cauda*, tail

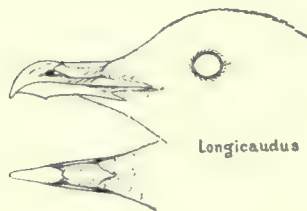
Description. Colors and color phases practically the same as in Parasitic and Pomarine jaegers, but the dark phase is apparently of rare occurrence. The tarsus leaden blue, tibiae and feet black. The *shafts of the first 2 or 3 primaries white, the others brownish*, an abrupt change from white to brown at the third primary.

Length 17-23 inches; wing 11.75-12.5; tail 14-16, the central feathers projecting 8-10 inches in the adult; bill 1.1-1.3; tarsus 1.5-1.8; tibia bare .75; middle toe and claw 1.4-1.65. *Young* smaller, the central tail feathers projecting only a short distance, making the total length much less than recorded for the adult, wing 9.5-11.25.

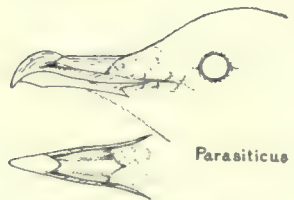
Distinctive marks. Adult birds of this species are easily recognized by the excessive elongation of the central pair of tail feathers, the shorter and weaker bill and lighter bulk of body. The young are also smaller than those of the Parasitic jaeger and the mottling and marbling is of a prevailing leaden grayish; the tarsus is relatively longer than in *parasiticus*, being longer than the middle toe and its claw, while the reverse

is the case in *parasiticus*; the unguis is longer than the cere or saddle; and there is an abrupt change at the third primary from white to brownish shafts as in the adult.

The Long-tailed, Arctic, or Buffon jaeger is apparently very rare in this State. Mr Dutcher has no record of specimens in his Long Island Notes. Mr Helme says it occurs as a rare visitant, but mentions no specimens. The same is true of the notes of the late L. S. Foster of New York and David Bruce of Brockport. Mr Chapman states that it is sometimes

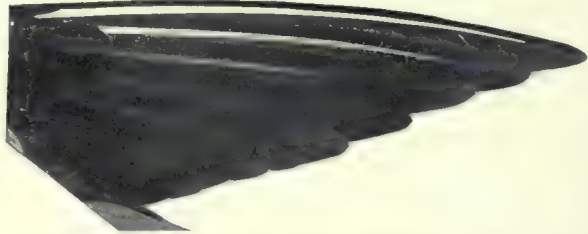


Longicaudus

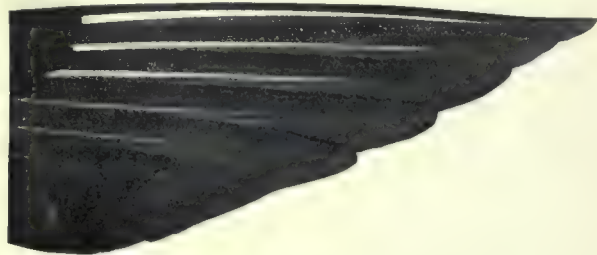


Parasiticus

Bills of jaegers $\frac{1}{2}$ nat. size



Long-tailed jaeger. (Note the abrupt change at the third primary in the color of the shafts.)



Parasitic jaeger. (Note the *gradual* change in the whiteness of the primary shafts.)

not uncommon off our coast. The only definite record for this State is an immature bird in the plumage of the first fall taken on Long Island and now in the Lawrence Collection [Am. Mus. Nat. Hist., no. 46094].

The jaegers of Giraud and DeKay are very difficult to make out. The *Lestris parasiticus* of Giraud, a description of which he copies from *Fauna Boreali Americana*, is evidently the Long-tailed jaeger which is now known as *longicaudus*, but the specimen from South Oyster Bay [Birds of L. I. p. 365], which he ascribes to this species is undoubtedly the light phase of a Parasitic and not a Long-tailed jaeger, since he states

that the tail feathers are about three inches shorter than the dimensions given by Swainson and Richardson. There seems no doubt also that the specimens from Gowanus bay [Birds of L. I. p. 365] may be the young of the Parasitic jaeger. The specimen to which he refers as *Lestris richardsoni* [p. 367] is a Parasitic jaeger in the dark phase; thus it appears that none of Giraud's specimens can be referred with certainty to the species *longicaudus*, although he himself refers two to that species. DeKay's *Lestris richardsoni* is undoubtedly a Parasitic jaeger. His *L. buffoni* is probably the same species, although it may be the intermediate phase of *longicaudus*.

Family LARIDAE

Gulls and Terns

Gulls and terns are distinguished by the structure of their bills, which are more or less epignathous and somewhat compressed, with a protuberant gonys, but lacking the horny saddle of the jaegers. The nostrils are linear or oblong, placed toward the middle or in the basal half of the bill, and are open transversely. Among the gulls, especially the larger species, the bill is stout, and hooked near the end, and the short symphysis of the branches of the lower mandible makes a prominent gonys, or angle of the jaw. There is a continuous graduation in the size and shape of the bill from the heavy hooked beak of the Great black-backed gull, to the slender, nearly straight bill of Bonaparte and Sabine gulls; and among the terns from the ponderous beak of the Caspian tern and the gull-like beak of *Gelochelidon* to the slim and delicate bill of the Black tern. The tail is nearly square in most gulls; in terns and some gulls it is forked. The legs are short, especially in terns, the *tibiae* being bare for a short distance. The legs are placed near the center of the body, so that they stand and walk with ease, carrying the body in a nearly horizontal position. The plumage is long and dense on the breast so that they rest lightly on the water, "swimming high" in comparison to divers or even ducks. Gulls and terns are very uniform in coloration, being mostly white with a darker mantle over the back and wing coverts, which ranges from slaty black in *marinus* to pale pearl-gray in *hyperboreus*, but is pure white in the Ivory gull. They have dusky or black markings, of greater or less extent, on the primaries, excepting in *hyperboreus*, *leucopterus* etc., where they are nearly pure white. A great point is made of these markings in the determination of species [see pl. 5, 6]. The molt occurs twice a year so that there is a slight difference between the summer and winter plumages. Immature birds

are darker colored and marked with brownish even in *Pagophila alba* requiring two or three years to reach mature plumage. The sexes are alike in color, but the males are slightly larger. In the breeding season the bill, mouth, eyelids and feet, one or more, are ornamented with brilliant shades of red or yellow; several species have a delicate salmon-pink suffusion of the breast plumage; the terns have a black cap, and a group of smaller gulls a black hood. Most gulls and terns are maritime birds, rarely traveling inland except on the larger streams and lakes. They are almost constantly on the wing searching for the fish, other marine animals and refuse, which constitute their food. The voice is harsh and shrill in the smaller species, but hoarse in the larger ones, inseparably associated with lapping waves or pounding surf, while their graceful forms following the ship are usually the first indication to the voyager that he is approaching land, though it be hundreds of miles away. Gulls and terns nest in colonies on rocks, or sandy beach, or the drift of inland lakes, or sometimes even in trees. The eggs are two to three in number, rarely four, of some olive, greenish, or buffy shade, spotted with brown or black. The young stay in the nest and are fed by their parents, i.e. they are nidicolous and altricial, but they are covered with down and some species which nest on the beach often move about when a few days old, thus showing an approach to the praecocial type.

***Pagophila alba* (Gunnerus)**

Ivory Gull

Plate 6

Larus albus Gunnerus. Leem's Beskr. Finm. Lapp. 1767. p. 285

Gavia alba A. O. U. Check List. Ed. 2. 1895. No. 39

pagoph'ila, Gr. πάγος, ice, φίλος, loving; *al'ba*, Lat., white

Description. *Adult:* Pure white, shafts of the primaries yellow; bill yellowish; feet black; iris brown; eyelids red. *Young:* Upper parts, tips of the wings and tail feathers with dusky spots.

Length 15-19.5 inches; average 17; extent 41; wing 13.25; tail 5.5; culmen 1.4; gape 2.1; depth of bill at nostril .45; tarsus 1.45; middle toe and claw 1.75.

This is an arctic species, very rarely entering the United States. The only specimen from New York is recorded by Dutcher in the *Auk*, volume 12, page 290. It was shot on Great South bay, near Sayville, L. I., by John Goldsworth, January 5, 1893. Mr Helme writes that he once saw a single bird of this species flying about Mt Sinai Harbor, Suffolk county, N. Y.

Rissa tridactyla (Linnaeus)*Kittiwake*

Plate 6

Larus tridactylus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:136

DeKay. Zool. N. Y. 1844. pt 2, p. 313

Rissa tridactyla A. O. U. Check List. Ed. 2. 1895. No. 40*ris'sa*, Icelandic name; *tridac'tyla*, Gr. τριδάκτυλος, three-toed

Description. Head, neck, tail and under parts white; back and wings pearl-gray or dark bluish; outer web of the first primary and tip of wing to length of three inches black, the *division being squarely across the end of the wing*; primaries after the first tipped with white; bill yellow; feet black; iris reddish brown; eyelids red; *hind toe a mere knob without any nail*. *In winter:* Small black crescent in front of the eye; back of head and neck, and the sides of the breast tinged with bluish gray, changing to blackish in the ear region. *Young:* Crescent in front of eye, ear spot, back of neck, part of the wing coverts, *band at tip of tail*, except outer feathers black; more black on the primaries than in the adult; bill dusky.

Length 16-17.7 inches; wing 12.25; tail 4.5; bill 1.3-1.5; tarsus 1.3; middle toe and claw 1.8.

In winter and immature plumage the Kittiwake bears superficial resemblance to the Bonaparte gull, but by referring to the description given above, and plate 6, the distinction is easily manifest. Furthermore the absence of the hind toe in the present species is an easy mark of identification when the bird is in hand.

Giraud, DeKay and Lawrence mentioned the Kittiwake as occurring on the shores of Long Island. J. H. Batty in *Forest and Stream*, volume 7, page 164, treats of it as a winter visitant on our coast. Mr Dutcher calls it a common migrant in late fall, and an uncommon winter resident, occurring some distance off shore, his dates ranging from November 13 to March 17. It is apparently rare on the inland waters of the State. William Hopkins has reported a specimen taken at Auburn, N. Y., January 4, 1854 [see Bost. Soc. Nat. Hist. Proc. 1856, 5:13]. One from Seneca lake is recorded in the Auburn list; one from Oak Orchard, Orleans county, April 10, 1881, by David Bruce; one from Constantia, Oswego county, November 9, 1890,

by Bagg, *Auk*, volume 11, page 162. Mr Truman R. Taylor has noticed it as an irregular migrant in Monroe county.

The Kittiwake is holarctic in range, breeding from the Gulf of St Lawrence to 80° north latitude. Its name is derived from the call notes which resemble the syllables *kitti-aa*, *kitti-aa*. It is more pelagic in haunts than any of our other species.

Larus hyperboreus Gunnerus

(*Larus glaucus* on plate)

Glaucous Gull

Plate 5

Larus hyperboreus Gunnerus in Leem, Beskr. Finm. Lapper. 1767. p. 22 (note)
Larus glaucus A. O. U. Check List. Ed. 2. 1895. No. 42

larus, Gr. λάρος Lat. *lar'us*, gull; *hyperbo'reus*, Lat. northern

Description. *Adult in summer:* White, the mantle very pale pearl-blue; primaries all white, or extremely pale pearl-gray, fading to white at the tips; bill chrome yellow with a vermilion spot at the angle; feet pale flesh color, or yellowish; iris yellow; eyelid vermilion; mouth flesh-color. *In winter:* Head and neck slightly varied with brownish. *Second winter:* Pure white, sometimes with trace of the brown bars and mottlings characteristic of the first winter, sometimes with a trace of the adult plumage; bill flesh-colored with dusky tip. *First winter:* Dingy white, profusely marked with pale buffy brown or drab gray, the markings being coarse bars and mottlings on the back and wing coverts, obscure streaks on the head and neck, obscure bars and fine mottlings on the wings and tail; under parts nearly uniform pale brownish or drab gray; legs and bill flesh color, the latter tipped with black; iris brown; the primaries "ecru drab" varying to dull white. The plumage gradually fades during the winter, becoming very light toward spring.

Length 26-32 inches; extent 60; wing 16.7-18.75; tail 7.4-8.5; bill 2.3-3; gape 3.75; depth of bill at angle .8-1; tarsus 2.4-3.25; middle toe and claw 2.65-3. Immature birds have the smaller dimensions.

The white phase of this gull is *Larus hutchinsii* of earlier writers and probably the *L. arcticus* also. According to Dr Dwight [Auk 23: 30-34] birds of the third winter sometimes show the plumage which is most characteristic of the second year, and sometimes birds of the second winter possess the mantle and white body feathers of the adult.

The Glaucous gull, Burgomaster, or Ice gull is an uncommon but regular winter visitant to the shores of this State. It is an Arctic species famous for its raucous voice and gluttonous appetite. Several have been captured on the lower Hudson river and on Long Island, [see Chapman, Birds of New York and Vicinity, p. 16]. Recent records are as follows:

- Washington co., N. Y. Winter 1868. (White phase). Elliot, Birds of N. A., pl. 12
 Long Island sound, N. Y. Mar. 1879. L. I. Hist. Soc. Col.
 Long Island, N. Y. Mar. 4, 1880. (White phase). Found in Fulton Market, Mearns, N. O. C. Bul., 5: 189
 Bangor, Franklin co., N. Y. About 1880. Merriam, N. O. C. Bul., 7: 257
 South Oyster Bay, L. I. Mar. 11, 1884. Dutcher, Auk, 2: 37
 Springs, L. I. Gardiners Bay. Mar. 19, 1887. (25 seen). (Parsons). Dutcher, Notes
 New York, N. Y. Jan. 19, 1889. wv, oc. L. S. Foster
 Sag Harbor, L. I. Dec. 11, 1890, ♀; Feb. 8, 1890. Dutcher Collection
 Far Rockaway, L. I. Jan. 11, 1891. ♀. Immature. Howell, O. and O., 16: 61. Lin. Soc. N. Y. Proc. 1891. p. 5; Braislin, p. 36
 Far Rockaway, L. I. "Jan. 1, 1891." (Howell). Dutcher, Notes
 Miller's Place, L. I. wv, 1893. (Helme). Dutcher, Notes
 Buffalo, N. Y. Jan. 29, 1895; Feb. 13, 1898. Savage, Auk, 12: 312
 Lake Ontario, Monroe co., N. Y. Feb. 22, 1899. Truman R. Taylor
 Rockaway, L. I. Jan. 2, 1901; Jan. 13, 1901; Mar. 13, 1904; May 1, 1904. (Peavey) Braislin. Lin. Soc. N. Y. Proc. 1907. p. 36
 "Larus hutchensii" New York and vicinity. Lawrence list

Larus leucopterus Faber

Iceland Gull

Larus leucopterus Faber. Prodr. Isl. Orn. 1822. p. 91
 A. O. U. Check List. Ed. 2. 1895. No. 43

leucop'terus, Gr. λευκός, white, and πτερόν, wing

Description. *Colors and sequence of plumages as in the Glaucous gull, but in immature birds the shafts of the primaries are more often white or brownish instead of yellowish as in hyperboreus. Also the mottling of the first winter plumage, according to Dr Dwight, is sometimes more blackish in the present species.*

Length 24-26 inches; wing 14.75-16.5; tail 6-6.7; bill 1.6-1.9; depth of bill .62-.7; tarsus 2.1-2.5; middle toe and claw 2.1-2.35.

The Iceland or White-winged gull, like its larger counterpart the Glaucous gull, is an holarctic species, and straggles southward in winter to

the Great Lakes and the shores of Long Island. The specimens taken in this State are almost always immature birds and are most often seen in winter or early spring. Audubon mentions this species as occurring as far south as the Bay of New York, but neither Giraud, DeKay, nor Lawrence mentions it as a New York species. Dr Merriam, in April 1878, saw two of these gulls over a pond in the Adirondack region, as recorded in Bulletin of Nuttall Ornithological Club, volume 6, page 235, and in *Auk*, volume 1, pages 241-42. Other records are as follows:

Peterboro, Madison co., N. Y. Feb. 1, 1884. Juvenal. Lawrence, *Auk*, 1: 240.
Green-Smith Col.

Miller's Place, L. I. Winter of 1893; Nov. 30, 1888. A. H. Helme

Lansingburg, N. Y. Nov. 21, 1888. ♀ Juvenal. State Museum. No. 41

Rye, N. Y. Mar. 3, 1894. Porter, *Auk*, 12: 76

Cayuga lake, N. Y. Mar. 17, 1897. (In white plumage). L. A. Fuertes

Oswego, N. Y. wv, oc. D. D. Stone

" Dec. 28, 1899. Fairly common. Gerrit S. Miller

Rockaway Beach, L. I. Feb. 6, 1898. (Peavey). Braislin, p. 36

Lake Ontario, near Brockport, N. Y. Sept. 10, 1899. ♂ Juvenal. David Bruce

The last specimen taken in the State, as far as I can ascertain, is an immature female collected by the author at Rochester, N. Y., April 14, 1904. It was associated with a large flock of Ring-billed gulls and a few immature Herring gulls on the wide waters of the canal and as soon as seen was recognized by the peculiar chalky whiteness of its plumage, and especially the whiteness of its wings when flying; for, although it was in the faded plumage of the first winter, it appeared wholly white when seen at a distance. Although its companions were very noisy, no sound was heard from the Iceland gull during the three days while it was under observation.

***Larus kumlieni* Brewster**

Kumlien Gull

Larus kumlieni Brewster. N. O. C. Bul. 1883. 8: 216

A. O. U. Check List. Ed. 2. 1895. No. 45

kumlieni, in honor of Ludwig Kumlien

Description. Colors practically the same as *hyperboreus* and *leucopterus*, excepting the *primaries*, which have *subterminal bars*

and shadings of slaty or brownish. Immature birds are darker colored than the Iceland gull, the flight feathers being brownish gray, darker on the outer webs; tail almost solidly drab gray, the base and outer feathers sprinkled with dingy white; the barring and mottling is coarser and darker than in *leucopterus* [see Dwight, *Auk*, 23:36-41].

This species, first described by Mr Brewster in 1883, is little known as yet, but is apparently a rare winter visitant on the waters of this State. The first specimen from New York was shot at Green Island, on the Mohawk river, January 27, 1884, by Edward Root, and is now in the State Museum, Park Collection. Mr Park's notes made from the fresh specimen may be of interest: "Length 23 inches; extent 51.75; wing 15.75; tail 7; tarsus 2.2; middle toe and claw 2.25; bill 1.6; bill of a general light watery yellow, palest and with a greenish shade at base, with a small vermilion spot on lower mandible about at angle in a cloud of dusky. Upper mandible on top chrome yellow at angle with a line of red along ridge toward the point; iris mottled grayish brown; tarsus and toes flesh color, claws nearly black. Weight 21 ounces. Poor in flesh, stomach contained a few grains of gravel. Ovaries show that it had been through *at least one* breeding season." This bird was identified by Mr Brewster. Its head and neck are streaked and suffused with grayish and the breast is slightly soiled with grayish. Thus it is evidently a nearly mature specimen, being a bird of the second or third winter. A second record for New York is given by Braislin, *Auk*, 16: 190; it is an immature male which was shot by John Tiernan, 5 miles off Rockaway Beach, L. I., on March 8, 1898. An immature female from Stamford, Conn., February 16, 1894, is reported by Porter [*Auk*, 12: 76; also Dwight, *Auk*, 23: 37].

***Larus marinus* Linnaeus**

Great Black-backed Gull

Plate 5

Larus marinus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 136
DeKay. Zool. N. Y. 1844. pt 2, p. 308, fig. 283
A. O. U. Check List. Ed. 2. 1895. No. 47

mari'nus, Lat., marine

Description. *Large:* Mantle slaty black with purplish reflections; primaries slaty, or blackish tipped with white; secondaries broadly tipped

with white; head, neck, tail and under parts pure white; bill bright chrome yellow, with a large vermilion spot; iris lemon-yellow; eyelids and mouth vermilion; legs and feet pale flesh color. *Immature*: "Upper parts dusky chocolate-brown, mottled with whitish and light rufous, the latter on back and wings, the feathers being tipped and wing coverts deeply indented with this color; primaries and tail brownish black, the former tipped, the latter subterminally barred, and its outer feathers mottled, with whitish." [Coues]. Under parts varied with whitish and dusky, lightest on the throat; bill black. The specimen figured by Mr Fuertes, plate 5, is evidently in the faded-out plumage of the first winter, being much lighter than the average fall specimen of the first year.

Distinctive marks. Mature birds of this species can always be recognized even at a great distance by their large size and black mantle. Immature birds differ from the Glaucous gull, our only species which compares with them in size, by their dark primaries and the generally darker coloration of the upper parts.

The Great black-backed gull, Saddle-back, or Coffin-carrier is less arctic in distribution than the three species just described, breeding as far south as the Bay of Fundy. It is consequently more often seen with us, occurring as a common winter visitant on the shores of Long Island, Mr Dutcher's dates ranging from September 22 to March 17, and a regular but uncommon winter visitant on the Great Lakes [see Savage, Auk, 12:312, and Davison, Birds of Niagara County]. It is also occasionally taken in the interior of the State, as at Brockport [see Short, p. 5]; and Branchport, April 18, 1898 [see Stone, Auk, 16:284]; and at Booneville, February 1903 [see Johnson, Auk, 20:303]. Correspondents also report it from the shore of Lake Ontario in the counties of Orleans, Monroe and Oswego; also from Cayuga and Seneca lakes.

The Black-back is chiefly a maritime species. It is very noisy in its breeding haunts, which are confined to the shores of the north Atlantic. All observers agree that it is one of the wariest birds at all times of year.

Larus argentatus Pontoppidan*Herring Gull*

Plate 5

Larus argentatus Pontoppidan. Danske Atlas. 1763. 1:622

DeKay. Zool. N. Y. 1844. pt 2, p. 306, fig. 270, 284, 286

Larus argentatus smithsonianus A. O. U. Check List. Ed. 2. 1895. No. 51a.*argentatus*, Lat., silvery

Description. *Adult in summer:* Head, neck, tail, and under parts pure white; mantle "gull-blue" about the same shade of pearlblue as in *delawarensis*, but darker than in *hyperboreus*, *leucopterus* and *kumlienii*, primaries like the back at base extending successively farther along the center of the feathers and growing nearly white, then comes a black portion varying from a length of 5 inches on the first primary to a mere spot on the seventh; all the primaries also have rounded white tips, and the first a subapical rounded white spot about 1 inch in diameter, which becomes elongated in older birds and sometimes coalesces with the white tip, making a terminal white portion 2 inches in length; the second primary has a subterminal white spot, such as younger birds possess on the first primary; bill bright chrome with a vermilion spot at the angle; legs and feet pale flesh color. *In winter:* Head and neck streaked with dusky; bill duller. *Nearly mature:* Upper parts margined or mottled with grayish; tail with an indefinite subterminal dusky band. *First winter:* More or less edged and mottled with dusky; wing and tail feathers brownish black; often on upper parts patches of pearlblue; bill flesh color tipped with black. *Juvenal plumage:* "Above grayish brown with whitish and buffy edgings; below plumbeous with inconspicuous whitish mottling, the head and neck paler and tending to streaking. The primaries are uniformly brownish black. The rectrices are similar but basally, and the outer one slightly, mottled with grayish white. The bill is plumbeous and the feet flesh-colored. *Natal down:* Grayish above with obscure mottling on the back and black spots on the head and throat, paler below." [Dwight, Auk, 18:58]

Length 22.5-26 inches; average 24; extent 54-58; wing 16.5-18; tail 7.5; bill 1.95-2.5; depth of bill at angle .7-.85; tarsus 2.3-2.8; middle toe and claw 2.3.

Field marks. The amateur can scarcely mistake this bird for any of our other gulls, except the Ring-billed species. The young Iceland and Kumlien gulls are practically of the same size, but the plumage of the present species is much darker, especially on the wings and tail, than in

either of those birds, although a faded out Herring gull of the first winter might be mistaken for the juvenal plumage of the Kumlien gull. Students should be very wary of trying to recognize at a distance any of our rarer gulls in their immature plumage. This can be done with certainty only when the bird is in the hand, or in very exceptional circumstances. The Ring-billed gull is considerably smaller than the Herring gull, but at a distance it is difficult to distinguish from the present species. The surest way to recognize the species is to get near enough to judge its size accurately, and, if the bird is immature, the broad, subterminal black band on the tail of the Ring-billed gull is distinctive, and in mature birds the black ring on the bill.

Distribution. This is the commonest and most generally distributed gull in the State, in fact this is true of the holarctic realm in general, the American and the palearctic bird now being considered identical. It is abundant along the coast of New York in winter and a few are often seen in summer. It is almost as common on the Great Lakes and rivers as on the seacoast, but occurs more as a transient visitant in the interior, especially on small bodies of water. It still breeds in the Adirondack region, more particularly in the western and southwestern portions, in the counties of Franklin, Herkimer and Hamilton. Mr L. L. Merriam reports it as common and breeding in 1907, on Raven lake and North pond. I failed to find it breeding in Essex county during the summer of 1905, but it probably was breeding in the southern part of the county, as birds made daily trips to Elk lake where they had nested in preceding years, but their nests have been broken up, or their young killed by thoughtless tourists until they have deserted the islands in that lake which they formerly occupied. I regret to say that this is also the case in many parts of the Adirondacks, notwithstanding the law which has been passed for the protection of these birds. It is said that they formerly bred on the islands near the north and northeast shore of Lake Ontario, but no evidence has been found that they do so at present. In 1902 a small sailing boat landed on one of the barren islands and found only dead birds around the nests.

Migration. The Herring gulls which remain all winter on the lakes and open rivers of the State are joined in March or early April, when the ice goes out, by large numbers which have spent the winter farther south. They continue common on the lakes till late in May. During June and July few, if any, are seen in the interior of the State except a small number which are summer residents of the Adirondacks. In early August this gull begins to appear again on our inland waters and continues to increase in numbers until the first of November when the majority gradually depart for the south. On the lower Hudson, Dr Fisher gives its average time of arrival as September 21st, and its departure for the north, May 9th. On Long Island, it comes from the north in September and departs in May.

Haunts and habits. The Herring, or Winter gull, is the species usually seen coursing along the shore, or lying in long "beds" on the sand bars or on the water some distance offshore, both on the inland lakes and the seacoast. They are continually circling about the harbors or following garbage scows in flocks of thousands. They also follow coastwise vessels to feed on refuse cast overboard by the cooks, and when the coveted morsels are thrown in the sea, the few birds which are near the ship are joined in an incredibly short time by dozens and sometimes hundreds of birds, when the air above the floating crackers and bacon scraps becomes a confused tangle of screaming gulls, until the last vestige is devoured. It is quite impossible to deceive these birds by throwing bits of wood or cigar stubs from the boat; although I have seen it tried many times, no birds appeared to take the slightest notice, but as soon as a piece of cracker was thrown, there was immediately an eager scrimmage. I have often sat on deck and watched the soaring gulls above the masthead with scarcely any motion of their wings, moving against a 10 mile breeze and maintaining the same position with reference to the ship as she plowed along at the rate of 12 miles an hour. The Herring gull becomes quite tame and friendly in cities and parks where it is protected, but on the lake shore and sound where gunners often molest it, it becomes very wary, and I have had great difficulty in securing specimens in different plumages. On its breeding grounds, the scream of this bird,

according to Audubon and Nuttall, is a barking *akak kakak*. Every one must be familiar with the Sea-gull's scream, but it is difficult to describe in syllables. Its food, like that of gulls in general, consists of small fry, dead fish, and any floating refuse which it can pick up. It is sometimes found feeding on carrion at a considerable distance from water. When securing live fish, it plunges its head and neck under water, either when dropping from the air, or resting on the shore, but it never seems to dive like a Kingfisher or Fish-hawk. I have seen it standing on a sandy beach, in shallow water, devouring the small fishes which were swimming about it, till it had swallowed upward of 50, as was proved by killing and dissecting the bird. It is probable that the fish destroyed by this bird are mostly small fry which have no value except as food for other fish, and I am inclined to believe that its principal food consists of dead, or disabled fish, or of refuse which would pollute the water and shore. Hence, it can be regarded as a beneficial species, especially when we consider its esthetic importance. The lake or seashore without its graceful gulls and terns would lose much of its charm.

Nest and eggs. The Herring gull places its nest on the ground or a shelf of rock, and occasionally in a scrubby bush or tree. It prefers to nest on islands, probably to escape the attacks of marauding animals. The nest is composed of grasses, moss, and seaweed; and contains two or three eggs, varying in color from greenish or bluish white to brownish olive, with irregular spots, blotches and lines of brown and blackish. In the Adirondacks the eggs are laid from the 1st to the 30th of May.

Larus delawarensis Ord

Ring-billed Gull

Plate 5

Larus delawarensis Ord. Guthrie's Geography, Am. Ed. 2. 1815. p. 319
Larus zonorhynchus DeKay. Zool. N. Y. 1844. pt 2, p. 308, fig. 282, 285
Larus delawarensis A. O. U. Check List. Ed. 2. 1895. No. 54

delawarēn'sis, of Delaware

Description. *Adult in summer:* Head, neck, tail and under parts pure white; mantle light pearl-blue; primaries tipped with white, except

the first, the first with a white spot near the end, the second with a small white spot on the inner web, the first black for nearly its whole length, the second to the sixth black for a shorter distance, becoming less and less, until the sixth, where it is only a narrow bar; bill greenish yellow with a band of black around it at the angle; iris pale yellow; eyelids orange-red; feet greenish yellow. *In winter:* Back of head and neck spotted with dusky. *First winter plumage:* Irregularly mottled with dusky brown and white, the back showing patches of pearl-blue; primaries black; tail mostly white with a broad band of black near the end; bill tipped with black, sometimes with a yellowish spot at the end. *Juvenal plumage:* Heavily mottled with brownish black, the feathers of the upper parts margined with buffy white; basal third of bill flesh-color, the rest black.

Length 18-20 inches; extent 49; wing 13.5-14.75; tail 6; bill 1.55-1.75; gape 2.3; depth of bill at angle .5-.65; tarsus 1.9-2.45; middle toe 1.8. The smaller dimensions refer to the females and young.

Distinctive marks. This bird can scarcely be mistaken for any other of our gulls, except the Herring gull, but I am inclined to think this often occurs, as comparatively few reports of this species have been received from amateur observers throughout the State. This bird is 5 inches shorter than the Herring gull. The old birds also may be distinguished by the black ring on the bill, the greenish yellow legs, and the black tip of the first primary; and young birds by the size, and the broad band on the tail.

Distribution. This is a species of the boreal and arctic zones, breeding mostly in the interior of British America. According to Giraud and Dutcher it is a common winter visitant on the shores of Long Island. Dr Braislin calls it a regular transient visitant, rare in winter and summer. It is given as an occasional winter visitant in the Hudson Highlands, by Mearns; at Ossining, by Fisher; and in western New York, by Short. The Auburn List gives it as a rare visitant. It has been recorded from Cayuga, Erie, Essex, Monroe, Niagara, Oneida, Ontario, Orleans, Oswego, Onondaga, Seneca, Schuyler, Tioga, Westchester and Yates counties, but in nearly every instance was called a rare transient visitant. On Canandaigua and Seneca lakes I have found it decidedly less common than the Herring and Bonaparte gulls, but on Lake Ontario and the Erie canal it is sometimes fairly abundant as a spring migrant. The record of its nesting at Axton in

the northern Adirondacks found in the *Auk*, volume 19, page 299, should probably be referred to the Herring gull.

Migration. On Long Island Dr Braislin's dates in the fall are September 5 to November 12, in spring from March 27 to May 15; Mr Dutcher's dates range from August 27 to April 10. At Rochester it arrives from the south in considerable numbers from the 25th of March to the 5th of April, and is commonest about the middle of April, departing for the north about the 10th of May. In the fall it seems to be less common, occurring during October and early November.

With us the habits and food of this species do not differ materially from those of the Herring gull, but in the interior of America it is said to live principally on grasshoppers and other insects which it captures both in the air and on the ground. In the vicinity of Rochester, N. Y., it frequents the "wide waters" of the Erie canal before the water is admitted in the spring, to feed on the refuse and dead fish, and sometimes gathers in great numbers on the fields where garbage is scattered, late in March and early in April.

***Larus atricilla* Linnaeus**

Laughing Gull

Plate 6

Larus atricilla Linnaeus. Syst. Nat. Ed. 10. 1758. 136
DeKay. Zool. N. Y. 1844. pt 2, p. 310, fig. 289, 290, 296
A. O. U. Check List. Ed. 2. 1895. No. 58

atricilla, Lat. black-tail; only applicable to the young (Coues)

Description. *Adult in summer:* Head and throat slaty black; mantle dark slate color; first six primaries black, usually with white tips, their bases like the mantle for an increasing distance from the first to the innermost; neck, rump, tail, tips of the secondaries, and under parts white, the breast and belly with a rosy tinge; bill deep carmine red with dusky tip; feet dusky red; iris blackish; eyelids carmine; mouth deep red. *In winter:* Head white mixed with blackish; bill and feet more dusky; under parts pure white. *Immature:* The mantle mixed with patches of grayish brown; primaries brownish black, lighter toward the tips; outer webs of secondaries brownish black; tail plumbeous gray with a broad band of black at the tip; upper tail coverts and under parts white, sometimes washed

with dusky white. *Juvenal plumage:* Upper parts light brownish gray, the feathers tipped with grayish white; a dusky space about the eye; forehead and under parts dull white, clouded with gray, especially on the breast; primaries black; tail dark bluish gray, with broad black subterminal band; bill and feet mostly brownish black.

Length 15-17 inches; extent 41; wing 12.5-13; tail 5; bill 1.65-1.75; gape 2.3; depth of bill at nostril .45; tarsus 2; middle toe and claw 1.5.

Distinctive marks. The dark mantle and primaries of the Laughing gull will distinguish it from our other Black-headed gulls in the mature plumage. Young birds may be recognized by the wholly brownish black primaries, and the generally darker upper parts than in our other small gulls.

Distribution. The Laughing, or Black-headed gull is an inhabitant of the tropical and austral regions of America. In this State it is practically confined to the seacoast, where it was a common summer resident in Giraud's day but now is rare, nesting only on the salt marshes of Great South bay. It is reported as an accidental summer visitant in the Hudson Highlands by Mearns; and near Buffalo by Bergtold. The northernmost colonies known are on the coast of Maine and Massachusetts. It occurs with us now chiefly as an uncommon transient visitant on Long Island first appearing in April, and passing south in September. Evidently the number of breeding colonies on the Atlantic coast has rapidly decreased during the last 30 years, but the protection by the Audubon Societies will probably save them from extermination. In Mr Dutcher's Long Island Notes the last records of its breeding are: South Oyster Bay, May 24, 1884; Amityville, June 11, 1887, 10 pairs; Cedar Island, May 19, 1888.

Haunts and habits. This gull inhabits the bays, islands and marshes of the seacoast, making its nest on the ground among the grasses. The eggs are from two to five in number, usually three, varying in color from a dull grayish white to a dark greenish or olive-brown, thickly spotted and splashed with brown, black, reddish and dull lilac, 2.12 by 1.55 inches in size. Dr Coues writes, "its cachinnations in the breeding season are not more vociferous than those of other species under similar circumstances." Langille

describes its call as "a long-drawn, clear note on a high key, sounding not unlike the more excited call note of the domestic goose; and every now and then it would give its prolonged weird laughter, which has given rise to its common name. To one who has heard it, it might be imitated by the syllables *hah-ha-ha-ha-ha*, *hah-hah-hah-hah-hah*, all of which are uttered on a high, clear tone, the last three or four syllables, and especially the last one, being drawn out with peculiar and prolonged effect."

***Larus philadelphia* (Ord)**

Bonaparte Gull

Plate 6

Sterna philadelphia Ord. Guthrie's Geography, Am. Ed. 2. 1815. 2: 319
Larus bonapartii DeKay. Zool. N. Y. 1844. pt 2, p. 311, fig. 287, 288
Larus philadelphia A. O. U. Check List. Ed. 2. 1895. No. 60

philadel'phia, the city of Philadelphia, Pa.

Description. Head and throat blackish slate-color; neck, under parts and tail pure white; breast and belly with rosy tinge; white patch on the under and upper eyelid; back and wings light pearl-gray; primaries mostly white with black tips, the outer webs of the first and second margined with black; bill black; feet orange-red; iris dark brown; eyelids and mouth carmine. *In winter:* Head and throat white, washed on the back of the head with grayish; no rosy tinge below; feet flesh-color; dusky spot in front of eye and below the ear. *First winter plumage:* Similar to the adult in winter, but the ear spot more distinct; scapulars, wing coverts and secondaries varied with dusky brown; tail with a subterminal blackish bar; bill dusky flesh-color tipped with black; feet pale flesh-color.

Length 12-15 inches; extent 32-34; wing 10-10.5; tail 4; bill 1.2; gape 1.75; depth of bill at nostril .25; tarsus 1.4; middle toe and claw 1.4.

Distinctive marks. In plate 6 the distinctive wing pattern and head colors of this species, both in the mature and immature specimens, are clearly shown. An immature Kittiwake is sometimes mistaken for this species, but the former may be recognized by its dark feet with no hind toe, the dusky band across the back of its head and its different wing pattern. The young Laughing gull is much darker on the wing tips and upper parts, is larger, and has a much larger bill and legs.

Distribution. Next to the Herring gull this is the best known and most generally distributed gull in the State, especially in the interior. It occurs as a transient visitant in considerable numbers on our inland lakes, as well as the seacoast, and a few are occasionally seen in winter on Long Island and the Great Lakes. It is purely an American species and breeds in high latitudes.

Migration. On Long Island it arrives from the north in October or early November and returns to the north in April, Mr Dutcher's latest date being May 4, and Dr Braislin's, May 11. On Lake Ontario and other inland waters it usually arrives from the south from the 2d to the 15th of April, leaves for the north from the 20th of May to the 10th of June, returns from the north October 1st to 20th and departs for the south from the 1st to the 20th of November.

Habits. This little gull is more often found in flocks than our other species and is frequently seen flying over swamps and plowed fields, searching for worms and insects; but is usually met with on the lakes and rivers hunting its food like the Herring gull. It is far less wary than that species.

Larus minutus Pallas

Little Gull

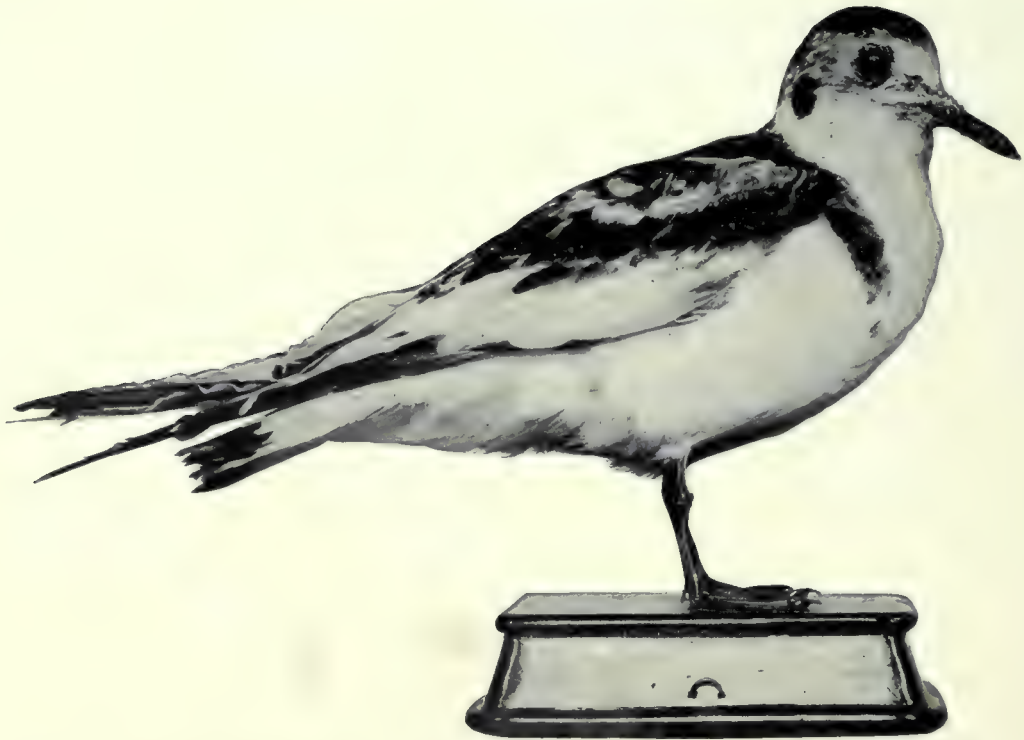
Larus minutus Pallas. Reisen Russ. Reichs. 1771. Apx. 35. 3:702
A. O. U. Check List. Ed. 2. 1895. No. [60.1]

minū'tus, Lat., very small

Distinctive marks. The *very small* size of this gull, the smallest of its race, will distinguish it. The mature bird has a black head, pale mantle, lake-red bill, vermilion feet, and no black on the primaries. The young are extensively dark brown above; the primaries brownish black in the center, edged and tipped with white; tail has a broad black band.

Length 10.4-11.5 inches; wing 8.7-9; tail 4; bill .9-1; tarsus 1; middle toe and claw 1.

This old world species is very rare in North America. Besides the doubtful record by Swainson and Richardson, and one from the Bermudas, there are only two specimens from this country, both taken on Long Island; the first an immature specimen shot at Fire Island, Suffolk co., N. Y.,



Little gull. *Larus minutus* Pallas. Long Island specimen in American Museum of Natural History. $\frac{1}{2}$ nat. size about September 15, 1887. It was taken by Robert Powell and presented by John Wallace to the American Museum [see Dutcher, Auk, 5:172]. The second specimen is a young female collected on Rockaway Beach, May 10th, 1902, by Robert L. Peavey, and presented to the Brooklyn Institute of Arts and Sciences [see Braislin, Auk, 20:52].

Xema sabini (Sabine)

Sabine Gull

Plate 6

Larus sabinii J. Sabine. Lin. Soc. Trans. 1818. 12:520, pl. 29
DeKay. Zool. N. Y. 1844. pt 2, p. 312, fig. 281
Xema sabinii A. O. U. Check List. Ed. 2. 1895. No. 62

xe'ma, meaning unknown; *sā'bini*, in honor of E. Sabine

Distinctive marks. This gull in any plumage may be recognized by its forked tail. The peculiar wing pattern and the black border around the

bottom of the hood are well shown by the figure on plate 6. Immature birds have no hood or collar; upper parts slaty gray waved and tipped with brownish white; under parts white; tail white with a black bar one inch wide in the middle, narrowing toward the edges. Adult birds in summer have a black bill, yellowish toward the tip, black feet, dark brown iris, vermilion mouth and eyelids.

Length 13-14 inches; wing 10-11.25; tail 4.5-5; forked .7-1.25; bill 1; depth of bill at angle .3; tarsus 1.25; middle toe and claw 1.25.

This beautiful arctic species is a rare visitant in this State. It is barely mentioned by DeKay and Lawrence, evidently on the authority of a specimen killed at Raynor South, L. I., in July 1837, and reported in Giraud's *Birds of Long Island*, page 363, and Baird, Brewer and Ridgway, *Water Birds*, volume 2, page 272. A second specimen from the State was reported by Worthington in *Auk*, volume 17, page 63. It was an immature female and was killed in Gardiners bay, on October 6th, 1899. Its stomach contained a cutworm and the remains of other insects. The only specimen known from the interior of the State is an adult bird in summer plumage, taken on the Montezuma marshes, in Seneca county about the year 1887, by Foster Parker of Cayuga, and now in the author's collection.

Gelochelidon nilotica (Hasselquist)

Gull-billed Tern

Plate 7

Sterna nilotica Hasselquist. Reise nach Pal. Deutsche Ausg. 1762. p. 325

Sterna anglica DeKay. Zool. N. Y. 1844. pt 2, p. 301, fig. 279

Gelochelidon nilotica A. O. U. Check List. Ed. 2. 1895. No. 63

gelocheli'don, Gr. γέλως, laughter; χελιδών, a swallow; *nilo'tica*, of the Nile

Description. *Adult in summer:* Crown and occipital crest greenish black; neck, tail and under parts white; mantle, rump, and middle tail feathers pale pearl-gray; primaries dusky grayish, the first silvered on the outer web, the shafts of all yellowish, and their inner webs with white spaces, largest on the first, diminishing to the last; *bill and feet black; the bill heavy and somewhat curved over at the tip.* *In winter:* Similar, but the head white with a grayish spot before the eye and over the ear.

Length 13-15 inches; extent 33-37; wing 11.75-12.25; tail 5.5, forked 1.2-1.75; bill 1.4; depth of bill at base .45; gape 2; tarsus 1.3; middle toe and claw 1.1.

This southern species, also known as the Marsh, Anglican, or Nuttall tern is an accidental summer visitant on the coast of this State. Giraud and DeKay found it rare on the coast, but the latter says that it occurs more frequently on the Great Lakes, a statement which I have been unable to verify and it is certainly not true at the present time. A record of its capture on Shinnecock bay, L. I., on July 8th, 1884, is given by Dutcher, *Auk*, volume 2, page 38; and on South Oyster bay, a pair on July 4, 1882, *Auk*, volume 1, page 34; also Point Lookout, Queens county, July 1, 1885, (5), Dutcher's Long Island Notes. This cosmopolitan species breeds on the Gulf and the South Atlantic coasts, as far north as southern New Jersey.

***Sterna caspia* Pallas**

Caspian Tern

Plate 8

Sterna caspia Pallas. Nov. Comm. Petrop. 1770. 14: 582, pl. 22, fig. 2

Sterna cayana DeKay. Zool. N. Y. 1844. pt 2, p. 299, fig. 277

Sterna tschegrava A. O. U. Check List. Ed. 2. 1895. No. 64

ster'na, from Eng. stern or tern; *cas'pia*, of the Caspian sea.

Description. *Adult in summer:* Large; crown and occipital crest glossy greenish black; neck, tail and under parts white; mantle pale pearl-gray; primaries grayish black, heavily silvered, but the inner webs entirely gray; *bill very large, coral red; feet black.* *In fall and winter:* Similar but the top of the head with only streaks of black. *Immature:* Top of the head streaked with black and the upper parts spotted and barred with blackish; bill paler color.

Length 20-23.5 inches; extent 50-55; wing 15-17.5; tail 5-6.75, forked 1.5; bill 2.5-3.1; depth of bill .9; gape 4; tarsus 1.75; tibia bare .75; middle toe 1.65.

The Caspian tern was not mentioned by Giraud or DeKay as occurring in the State. It is cosmopolitan in distribution and is a regular but rather uncommon transient visitant both on the coast and the larger lakes of New York. It breeds both south of us and far to the northward, but nowhere within our borders. A curious fact noticed by several observers is that they almost always appear in pairs on the autumn migration, a young bird escorted by an old one.

- Shinnecock bay, L. I. Sept. 7, 1882. ♀. Adult and juvenal. Dutcher, Auk, 1: 34
 " Sept. 13, 1882; Sept. later. Adult and juvenal. Dutcher, Auk, 1: 34
 Atlanticville, L. I. Aug. 1885. Adult and juvenal. (Lucas & Buck). Dutcher, L. I. Notes
 Long Island. Sept. 9, 1885. (Maguire & Chapman). Dutcher, L. I. Notes
 Good Ground, L. I. Aug. 12, 1889, (1); Aug. 21, 1889, (6). (Hendrickson). Dutcher, L. I. Notes
 Kendall, Orleans co. Sept. 1890. ♂. (Bruce). Posson, Auk, 16: 193
 Buffalo, N. Y. Fall of 1893. ♂. Juvenal. Savage, Auk, 12: 313
 Sandy Creek, Orleans co., N. Y. Sept. 1, 1894. ♂ adult, ♀ juvenal. David Bruce
 Canandaigua, N. Y. Apr. 28, 1895. 3 seen, 2 taken. E. H. Eaton
 Buffalo, N. Y. Aug. 21, 24, 1895. James Savage
 Lake Ontario, Monroe co., N. Y. Sept. 2, 1897. ♂ adult and juvenal. George F. Guelf
 Monroe co., N. Y. Several specimens mounted at Ward's. Truman R. Taylor
 Strawberry Island, Niagara river. Sept. 20, 1899, 1 taken; Sept. 27, 1899, 2 taken. (Koeler). James Savage
 Great South bay, L. I. July 21, 1900. 1. Braislin
 Canandaigua, N. Y. May 5, 1906. Small flock. M. Blake and F. Antes
 Erie, Pa. Sept. 15, 1888. Sennett, Auk, 6: 198
 " " Todd, Birds of Erie, etc. p. 506
 " Oct. 6, 1892. (Bacon). Todd, Birds of Erie, etc. p. 506
 " Sept. 21, 1901. " " "
 " Sept. 4-Oct. 3, 1900. "Rather common." Todd, Birds of Erie, etc. p. 506
 " Apr. 26, 1902, (3). (Simpson). " "

Sterna maxima Boddaert*Royal Tern*

Plate 8

Sterna maxima Boddaert. Table des Planches Enluminées. 1783. p. 58
 A. O. U. Check List. Ed. 2. 1895. No. 65.

max'ima, Lat., largest

Distinctive marks. Resembles the Caspian tern. Bill deep orange instead of coral-red as in *caspia*, *much slenderer*; tibiae bare .9 instead of .75 inches; tarsus shorter; tail relatively longer and forked for half its length; occipital crest much more prominent; black on the head does not extend as far down on the lores; inner webs of quills with their inner margins abruptly white.

Length 18-20 inches; extent 42-44; wing 14-15; tail 6-8; forked 3-4; bill 2.5-2.75; depth of bill .7; gape 3.75; tarsus 1.37; middle toe and claw 1.4.

The Royal tern is a species of tropical and austral distribution, breeding as far north as Cobb's Island, Va., and is an accidental summer visitant on our coast. The only authentic specimen from this State was taken at Raynor South, L. I., August 27, 1831, by J. F. Ward, and is now in the American Museum, Lawrence Collection. Giraud describes it under the name of Cayenne tern, but evidently confuses it with the Caspian tern which he does not mention, for he gives the coast of Labrador as its breeding range, following Audubon's misstatement, and says that Mr Bell received a number of specimens from various sections of Long Island. DeKay likewise confused it with the Caspian tern, his description of *S. c a y a n a* evidently referring to that species.

***Sterna sandvicensis acuflavida* (Cabot)**

Cabot Tern

Sterna acuflavida Cabot. Boston Soc. Nat. Hist. Proc. 1842. 2: 257

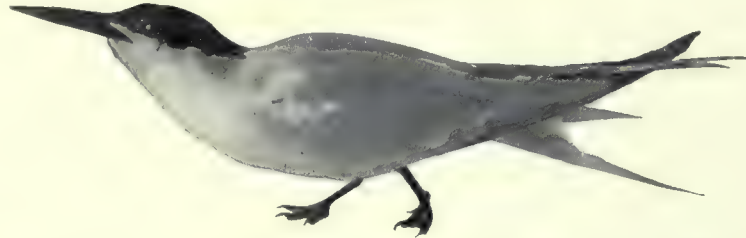
Sterna cantiaca DeKay. Zool. N. Y. 1844. pt 2, p. 303, fig. 274

Sterna sandvicensis acuflavida A. O. U. Check List. Ed. 2. 1895. No. 67

sandvicensis, of Sandwich, Kent; *acuflavida*, Lat., *acus*, point, and *flavidus*, yellowish

Distinctive marks. Bill black, tipped with yellow. Like the Royal tern in plumage and proportions, but only slightly larger than the common tern.

Length 15-16 inches; extent 34; wing 12.5; tail 6; forked 2.35; bill 2.25; depth of bill .48; tarsus 1.



Cabot tern. *Sterna sandvicensis acuflavida* (Cabot). From specimen in State Museum, $\frac{1}{2}$ nat. size

The Cabot, or Sandwich tern, is an inhabitant of the warmer seacoasts, the American bird being almost identical with the Old World form. Our bird breeds as far north as South Carolina, and has wandered up the coast.

to Massachusetts. As a New York species it rests on the record of Lawrence, [Lyc. N. Y., Ann. 1866. 8: 299]; and DeKay, page 303, who states that it has occurred on our coast.

Sterna trudeaui Audubon

Trudeau Tern

Sterna trudeaui Audubon. Ornithological Biographies. 1839. 5: 125, pl. 409
A. O. U. Check List. Ed. 2. 1895. No. [68]

trudeau'i, of Dr James Trudeau

Distinctive marks. Bill *yellow at base and tip with a broad black band* between; feet reddish; *head white* with a narrow slaty black bar on its sides passing through the eye; the rest of the plumage uniformly pale pearl-color; except the rump, tail, underwings, tips and inner veins of the secondaries, and the shafts of the primaries together with spaces on their inner veins, which are white.

Length 14 inches; wing 10.25; tail 6.5, forked 2.75; bill 1.5-1.7; depth of bill .38; tarsus .9; middle toe and claw 1.05.



Upper figure, Forster tern. *Sterna forsteri* Nuttall. Lower figure, Trudeau tern. *Sterna trudeaui* Audubon. From Audubon, *Birds of America*

The Trudeau, or White-headed tern, is an interesting neotropical species, which has been taken once on Long Island, as reported by Audubon in his *Synopsis of the Birds of North America*, page 319, and in the *Ornithological Biography*, volume 5, page 125, also in Giraud's *Birds of Long Island*, page 354. The record is also credited by Baird, Brewer and Ridgway, *Water Birds*, volume 2, page 291, and Chapman's *Hand Book*, page 80, and Chamberlain, *Revised Edition of Nuttall*, page 228. Audubon's type specimen is in the Giraud Collection, Vassar College Museum. It was collected by Dr Trudeau at Absecum Beach, Egg Harbor, N. J. Unfortunately the incidents and dates connected with the capture of the Long Island specimen were not definitely recorded, but there is no reason to believe that Audubon was mistaken regarding the identity of the bird.

***Sterna forsteri* Nuttall**

Forster Tern

Plate 7

Sterna forsteri Nuttall. Manual. 1834. 2: 274
A. O. U. Check List. Ed. 2. 1895. No. 69
for'steri, of John Reinhold Forster

Distinctive marks. *Bill* larger than in the Common tern, dull orange with dusky tip; black cap does not extend as far down as in *hirundo*, leaving more white between the eye and upper mandible; wings relatively shorter; primaries silvery, the outer web of the first not black; wings whiter than in the other species; under parts and rump white; mantle and tail pale pearl-gray; outer tail feathers *white on their outer webs, gray on the inner*; feet orange-red. *Adult in winter:* Tail less forked, the peculiar pattern of the outer feathers less distinct; crown white more or less tinged on the back of the head with gray; a black stripe from before the eye back across the ear coverts. *Young:* Similar, washed with grayish brown on the upper parts, and the primaries have more distinct spaces of white on their inner webs, like the Common tern.

Length 15 inches; extent 30; wing 9.5-10.5; tail 5-8, forked 2.5-5; bill 1.5-1.75; depth of bill .4; tarsus .9-1; middle toe and claw 1-1.1.

The Forster tern is an uncommon bird on the coast of this State, occurring as a transient in the fall. It has rarely been reported from the interior of the State, although it breeds at St Clair Flats and formerly did so on some of the islands in Lake Erie. It is a nearctic species, nesting from Texas to the fur countries. It undoubtedly escapes attention many times, especially in the fall, from its close resemblance to the Common tern. The only definite migration dates are:

Rockaway, L. I. Oct. 1, 1872; Sept. 3, 1873. N. T. Lawrence. Forest and Stream, 10: 13, 235
 Good Ground, L. I. Sept. 7, 1882. Dutcher Collection, 190
 Ram's Head Shoals, L. I. Sept. 17, 1883. " 1353
 Saratoga lake, N. Y. Sept. 11, 1880. Rich, O. & O., 6: 91
 Steuben co., N. Y. Fall of 1898. (Juvenal). A. H. Wood

Sterna hirundo Linnaeus

Common Tern

Plate 7

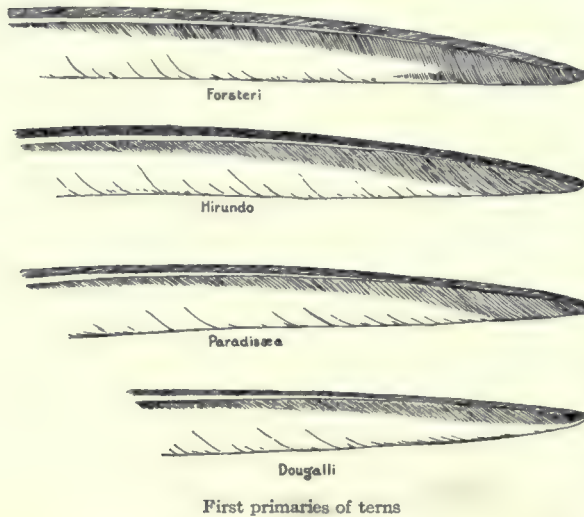
Sterna hirundo Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 137
 DeKay. Zool. N. Y. 1844. pt 2, p. 298, fig. 275, 276
 A. O. U. Check List. Ed. 2. 1895. No. 70

hirun'do, Lat., swallow

Description. *Breeding plumage:* Top of head black; mantle pearl-gray, deepest on the back; under parts similar but lighter than the mantle; borders of the cap, the throat, rump, under surface of wings, and axillaries white; first four or five primaries blackish, more or less silvered, and the inner webs with a space of white along the inner edge; lateral tail feathers *dusky* or *pearl-gray on the outer webs, white* or nearly so *on the inner*; bill vermilion red, changing to black at the tip; feet orange-red; iris dark brown. *In winter:* Similar, but the cap largely white toward the front; under parts white; bill and feet duller. *Immature:* Similar to winter adult but the upper parts more or less varied with light brown; *forehead grayish white; rump ashy*; smaller, and the tail shorter; bill yellowish at base, becoming blackish at tip; feet dull yellow.

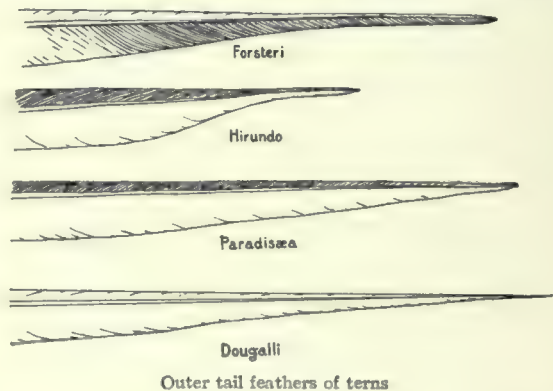
Length 13-16 inches; extent 29-32; wing 9.75-11.75; tail 5-7, forked 1 (in the young) to 3.5 in breeding birds; bill 1.25-1.5; depth .33; gonys .8; tarsus .66-.85; middle toe and claw 1.05. *Young:* Length 12; wing 9; tail 4; bill 1.12-1.15.

Distinctive marks. This tern resembles the Arctic and Forster terns but may be distinguished from the former by the color of its bill, which is *black at the tip* for one third of its length, its *tarsi* are *longer*, its primaries



have less white, and the white line of feathers along the base of the upper mandible scarcely extends to the feathered point. It is distinguished from Forster tern by the color of its streamers, which are *white on their inner webs* and gray on the outer, while the reverse is the case in Forster. The adult specimens of the Common tern also have pearl-gray underparts in summer, instead of white, and their feet and legs are redder.

Distribution. The Common tern, Wilson tern, or Sea swallow is an abundant transient visitant along the shores of Long Island, and is still a common summer resident in the protected colonies, especially on the north and south ends of Gardiners island, and on Fishers island, where wardens are maintained by the Audubon Societies and the A. O. U. It formerly bred along the shores of Long Island in great numbers, and as late as 1882 Mr Dutcher found it nesting at South Oyster Bay in considerable numbers; in 1883 it was becoming scarce, and in 1884 very few were left at that station. In 1885 they bred all over Little Gull island, in 1888 only 300 pairs were left, and now they have deserted that station entirely on account of the disturbance caused by the neigh-



boring military station. This tern formerly bred on the Canadian shore of Lake Erie, not far from Buffalo, and at Presque Isle, Erie, Pa., but now is not known to nest on the Great Lakes nearer than the Chicken islands, Put-in-Bay, western Lake Erie. In the interior of this State this bird is a fairly common transient visitant, especially on the Great Lakes, but is not known to breed within our limits except on the seacoast, where it was an abundant summer resident in Giraud's day. It is a bird of holarctic range, in America breeding from the Gulf coast to Greenland.

Migration. The Common tern according to Giraud arrives from the South by the middle of April and departs late in the fall; Mr Dutcher's dates range from May 9 to October 15. In western New York it is most often seen in early June, and from August 8th to September 25th, although I have seen it as early as May 5th on Canandaigua lake and as late as October 9th. It has been reported from Lake Erie on the 15th of April, but I am inclined to think that is exceptionally early for this species in the interior. Mr Todd's earliest record for Erie, Pa., is April 26.

Habits. The tern, or Sea swallow, is often seen standing on spiles, rocks, or floating debris, but less often swimming on the water than the gulls. Like gulls it spends a large portion of its time flying back and forth over the water looking for the small fish and the aquatic insects which are its principal food. When flying, terns carry the bill inclined downward, instead of pointing forward in the axis of the body, as is the habit of gulls. They nest in large colonies and near such resorts the air is often filled with their graceful forms. When the colony is invaded the birds raise a great uproar and dart about the intruder. Their scream is a harsh *tearr, tearr*.

Nesting. Their eggs are laid in a mere depression in the sand or rubbish near the shore, or on a nest of grass or seaweed, sometimes among the growing grass. They are from two to four in number, usually three, of a buff or pale brown color shaded with olive, thickly spotted with chocolate or blackish and obscure lilac. Dimensions average 1.6 by 1.22 inches. The nestlings are grayish buff mottled with dusky. The eggs of the Forster, Common, Arctic and Roseate terns are practically indistinguishable.

Sterna paradisaea Brünnich*Arctic Tern*

Plate 7

Sterna paradisaea Brünnich. Ornith. Borealis. 1764. p. 46
Sterna arctica DeKay. Zool. N. Y. 1844. pt 2, p. 302
Sterna paradisaea A. O. U. Check List. Ed. 2. 1895. No. 71

paradisae'a from *paradisus*, paradise

Distinctive marks. The first four or five primaries are similar to those of the Common tern, but the blackish on the inner web is less extensive, leaving only a small line of grayish along the shaft; tail white, streamers very long, the outer webs of the outside feathers grayish black, the inner webs slightly tinged with pearl-gray; bill is *slighter* and of a *rich carmine* color; tarsi and feet are *smaller*, of an intense carmine; the breast is of a *deeper lavender gray* than in the Common tern. *Young:* Scarcely distinguishable from those of the Common tern. Note the comparative dimensions carefully: "*forehead white*; shoulders darker than in *hirundo*; upper parts in general darker; the middle tail feathers *grayish*, bill, tarsi and feet *shorter* than in *hirundo*."

Length 14-17 inches; extent 29-33; wing 10-10.75; tail 6.5-8.5, forked 4-5; bill 1.2-1.4; depth of bill .3; gonys .75; tarsus .55-.65; tibia bare .45; middle toe and claw .8-.85. *Young:* bill 1.08-1.15; tail 4.75-5.

The Arctic tern is a rare bird in this State. It is barely mentioned by Lawrence and DeKay, and Bergtold gives it as an accidental visitant near Buffalo. Mr Dutcher has one specimen, a male taken on Ram island shoals, July 1, 1884. According to Brewster, [B. N. O. C., 4:15], the Arctic tern bred along the entire New England coast in 1878. It is a bird of holarctic distribution, breeding northward to unknown latitudes, and migrating southward in winter as far at least as Virginia on the American coast. It is remarkable that so few specimens have been taken on our coast, and those in summer!

Sterna dougalli Montagu*Roseate Tern*

Plate 7

Sterna dougalli Montagu. Orn. Dict. Sup. 1813

DeKay. Zool. N. Y. 1844. pt 2, p. 304, fig. 280

A. O. U. Check List. Ed. 2. 1895. No. 72

dou'galli, in honor of Dr McDougall

Description. *Breeding plumage:* Mantle pearl-gray extending to the base of the tail; neck and under parts white *tinted with delicate rose-pink*; tail white, the streamers very long and white on both webs, turning grayish toward the tip of the inner; primaries similar to the Common tern, but shorter and the *white on the inner web covering more than half the space and extending to the tip*; bill black, reddish at the base; feet bright red. *In winter:* Front of the cap mixed with white and the under parts without the rosy tinge. *Immature:* Head white, marked on the top and back with brownish gray; eye and ear regions blackish; under parts white; upper parts pale pearl-gray, marked with buff and blackish; the feathers with submarginal dusky marks; bill and feet dusky brownish; tail slightly forked.

Distinctive marks. This species is easily distinguished in the breeding season by its slender elegant form, pure white tail, and rosy under parts.

Length 14-15 inches; extent 30; wing 9.25-9.75; tail 7-8, forked 3.5-4.5; bill 1.5, depth .35; gonys 1; tarsus .85; tibia bare .4; middle toe and claw 1. *Young:* Length 11; tail 4; bill 1.35.

The Roseate, or McDougall tern, is an "uncommon but regular summer resident on Long Island," arriving in May and departing in September or early October. A few pairs of this species have been found by Dutcher, Chapman and Braislin nesting among the colonies of the Common tern on Gardiner's, Fishers, and the neighboring islands. It is an accidental visitant in the interior of the State; one from Lake Keuka is reported in the Auburn List; one from Lake Erie in the Buffalo List; one from the Niagara river, May 31, 1886, in the Davison List. It is holarctic in range but confined to warm latitudes, on our side of the Atlantic breeding from Florida to Maine.

The habits of the Roseate tern resemble those of the commoner species but it is a more wary bird and its voice is quite characteristic, the alarm note being a harsh *cack*, very different from the call of the Common and Arctic species.

Sterna antillarum* (Lesson)Least Tern*

Plate 7

Sternula antillarum Lesson. Descr. Mam. et Ois. 1847. 256
Sterna argentea DeKay. Zool. N. Y. 1844. pt 2, p. 305, fig. 273
Sterna antillarum A. O. U. Check List. Ed. 2. 1895. No. 74

antillā'rum, of the Antilles

Description. *Breeding plumage:* Crown and lores black; forehead white, extending over the eye; upper parts pearl-gray, with a leaden shade; under parts pure white; outer primaries black on the outer web and the shaft portion of the inner; bill bright yellow with dusky tip; feet orange-yellow. *In winter:* Bill dusky; back of head black; top of head spotted with black. *Immature:* Similar to winter birds, but the upper plumage more or less mottled with buffy and blackish, often in V-shaped pattern.

Length 9 inches; extent 20; wing 6.6; tail 3.5, forked 1.75; bill 1.2, depth .28; tarsus .6; middle toe and claw .75.

Distinctive marks. The adults of this species are easily recognized but the young are sometimes confused with that of the Black tern. Besides the general difference in structure, the size of the present species is considerably less, the wing being only 6.25 inches in length, while that of the immature Black tern is 7.75 inches or more. The upper parts of the Least tern are much lighter and the under parts are pure white.

The Least tern was formerly a common summer resident on Long Island. Mr Worthington found it breeding at the eastern end of Long Island as late as June 2, 1880, and Mr Dutcher noted it nesting in numbers on South Oyster Bay on July 11, 1882. It may possibly be regained as a breeding species by careful protection of the nesting sites. It has been recorded from the interior of the State by DeKay, Rathbun, Ralph & Bagg, Bergtold, and Eaton, but it is probable that the records on which these reports were based are partly in error, as all the specimens from the interior of this State, which I have had the privilege of examining, proved to be juvenile specimens of the Black tern. On the coast it occurs now as a rare migrant or summer visitant. It inhabits tropical and temperate North America, and is closely related to the neotropical *superciliaris* and the palearctic *minuta*.

Sterna fuscata Linnaeus*Sooty Tern*

Plate 7

Sterna fuscata Gmelin. Syst. Nat. 1766. Ed. 12. 1: 228

A. O. U. Check List. Ed. 2. 1895. No. 75

fuscā'ta, Lat., dusky

Description. *Adult:* Lores, crown and upper parts black, deepest on the top and back of the head; forehead, extending over the eye, white; outer tail feathers mostly white; under parts white; bill and feet black. *Immature:* Sooty brown, dark above, but fading to grayish on the belly; the lining of the wings, scapulars and tail coverts tipped with white, giving the bird a "peculiar spotty appearance."

Length 15-17 inches; extent 34; wing 12; tail 7.5, forked 3-3.5; bill 1.8, depth .5; gape 2.5; tarsus 1; middle toe and claw 1.2.

The Sooty tern, a bird of general distribution in tropical regions, is an accidental visitant on the coastal and inland waters of New York. In the years, 1876 and 1878, there was a marked invasion of these terns in New York and New England. Ten or more specimens have been recorded from New England. New York records are as follows:

Oswego, N. Y. "About 1875." D. D. Stone

Lake Champlain, N. Y. Sept. 6, 1876. Merriam, Auk, 1: 59

Owasco Lake, N. Y. Sept. 20, 1876. Fowler, Forest and Stream, 7: 230; N. O. C. Bul., 2: 76

Lake Ronkonkoma, L. I. Sept. 13, 1878. Dutcher, Auk, 3: 433

Highland Falls, N. Y. Sept. 13, 14, 1878. Mearns, Es. Inst. Bul., 12: 87

Montauk, N. Y. Sept. 18, 1883. (W. W. Worthington). Dutcher Collection, 1355

Hydrochelidon nigra surinamensis (Gmelin)*Black Tern*

Plate 8

Sterna surinamensis Gmelin. Syst. Nat. 1788. Ed. 1. 2: 604

Sterna nigra DeKay. Zool. N. Y. 1844. pt 2, p. 300, fig. 278, 278a

Hydrochelidon nigra surinamensis A. O. U. Check List. Ed. 2. 1895. No. 77

hy'drochelī'don, Gr. ὕδωρ, water, and χελιδών, swallow; *nī'gra*, Lat., black; *suriname'nsis*, of Surinam, Dutch Guiana

Description. *Adult in summer:* Head, neck, breast and belly, black; back, wings, and tail dark plumbeous or slate-color; primaries grayish

black, silvered on the inner edge and the shafts white toward the base; lining of wings and extreme edge of lesser wing coverts ashy white; under tail coverts pure white; bill black; mouth lake red; feet reddish brown; iris brown. *In winter:* Head, neck and under parts white, marked on the crown, nape, eye and ear region with blackish; patches of black in the white while moulting. *Immature:* Resemble adults in winter plumage, but the upper parts are more or less washed or marked with brown, especially on the back, which is quite brown in the interscapular region; sides more or less ashy brown.

Length 9-10.25 inches; extent 23-25; wing 8.25; tail 3.3-3.75, forked .9; bill 1.1, depth .25; gape 1.6; tarsus .66; middle toe and claw .95.

Distinctive marks. This bird should not be mistaken for any of our other terns, for its general structure is quite different, belonging as it does to a separate genus with well marked characters. The bill is very sharp and slender, shorter than the head, longer than the middle toe; angle of gonys very acute; wings very long, pointed and without distinct markings; primaries broad, not acute; secondaries not flowing; tail short, only slightly forked, without streamers; feet short and slender, webs deeply incised; colors dark. The young also differs from the Least tern in being larger, browner on the back and tinged with grayish brown on the sides.

The Black, or Short-tailed tern, is a fairly common migrant on the coast and larger inland waters of New York State. It is chiefly a species of the interior and is consequently somewhat irregular on the Long Island coast, but often appears in flocks of hundreds during the fall migrations. Such flights are recorded in Dutcher's Long Island Notes, especially on September 1-10, 1882, and September 5, 1884. His dates range from July 12 to September 14, there being no spring record for the coast, but Mr W. A. Mead reports it for Carmel, Putnam county, April 9th, 1896. In western New York it makes its appearance late in April—April 27 (Erie, Pa.), April 28 (Canandaigua), and "April 1893" (Utica). It occurs on all the inland lakes, most commonly in the fall from August 12 (Cohoes), August 17 (Canandaigua) and August 18 (Schroon lake) to September 30 (Penn Yan) and October 2 (Niagara river). It is also a summer resident in the marshes at the eastern end of Lake Ontario.

Nesting. I am pleased to report that the Black, or Short-tailed tern, is a regular summer resident in the marshes near the mouth of Big Sandy creek, Jefferson county, N. Y. According to Dr R. L. Crockett, Mr L. C. Snyder and Mr J. W. Soule the birds begin to lay during the last week in May, making their nests on sunken muskrat houses, floating boards, or debris, merely gathering together a few straws on which to deposit the eggs which are from two to five in number, usually three. Dr Crockett writes that the eggs are sometimes found as late as the last of July and thinks



Nest and eggs of Black tern. (From *Bird-Lore*; photo by Bent)

that two broods are reared. Mr Snyder estimated that there were 150 pairs of breeding birds in 1903. Mr William Hagedone, keeper of the Life Saving Station, writes that in 1905 there were probably 1000 birds in the marshes; that they arrive about the first of June, lay four eggs in a nest, the young "are all out" by the 4th of July, that no one shoots them, and they are all gone by the 1st of September. Mr Foster Parker of Cayuga has found it breeding in the Montezuma marshes on a few occasions. The eggs are brownish olive, quite heavily spotted and splashed with light brown, brownish black and obscure shell markings, dimensions 1.35 x .95

inches. This American representative of the species *nigra* breeds from Kansas and the Great Lakes to Alaska, migrating to the tropics and far into South America in winter. In flight its wings seem excessively long and at a distance it bears a great resemblance to the Nighthawk in size and color as well as in its wing strokes and habit of hawking about over the marshes in search of insects. I have little doubt that many of our April dates for the arrival of the Nighthawk in New York really belong to this bird. While searching the lake for food it carries its bill pointing downward like the other terns and often plunges into the water for the minnows with which its diet is varied.

Family **RYNCHOPIDAE**

Skimmers

Bill hypognathous, the lower mandible being considerably longer than the upper, *compressed* also, the *lower mandible being thin like a knife blade with an obtuse end*. The upper mandible is much less compressed and has a groove for the reception of the bladelike under mandible, and is hinged near the base, so as to admit of free movement; tongue stumpy; wings exceedingly long; legs and feet very small; tail slightly forked. Skimmers fly low over the surface of the sea, inclining the fore part of the bodies downward, with slow and measured wing beats, often cutting the surface of the water with their knifelike bills and "plowing up" their food of small marine animals. They are partially nocturnal in habits and hunt their food in close-ranked companies. Their voice is "hoarse and raucous," otherwise their habits resemble the terns to which they are closely allied. This is a family of very few species, confined mostly to the tropical region, only one species reaching the United States.

Rynchops nigra Linnaeus

Black Skimmer

Plate 7

Rynchops nigra Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 138
DeKay. Zool. N. Y. 1844. pt 2, p. 297, fig. 272
A. O. U. Check List. Ed. 2. 1895. No. 80

ryn'chops, Gr. ῥύγχος, beak, and ὤψ, face; *nī'gra*, Lat., black

Description. Upper parts black; forehead, sides of the head, under parts, tips of secondaries, and outer tail feathers white; bill carmine, black

toward the tip; feet carmine; iris hazel. *Immature:* Upper parts grayish brown; under parts white; bill and feet duller colored, bill smaller, imperfectly formed; tail less forked.

Length 16-20 inches; extent 42-50; wing 13-16.5; tail 4-6, forked 1.5; bill, upper mandible 3; under mandible 3.5-4.5; gape 4.5; depth of under mandible .6; tarsus 1.45; middle toe and claw 1.3.

The Black skimmer, Scissor bill, Cutwater, or Shearwater, is an occasional summer visitant off the shores of Long Island, but is not known to breed north of Egg Harbor, N. J. Giraud wrote, "It is not very common with us," but DeKay said, "It is common enough with us." The following recent records are all that have come to my attention:

Rockaway, L. I. July 26, 1876, (2); Sept. 3, 1876. N. T. Lawrence, *Forest and Stream*, 10: 235
 South Oyster Bay, L. I. Aug. 2, 1884. Grinnell, *Forest and Stream*, Aug. 7, 1884
 Amityville, L. I. May 6, 1893, (2). (Chichester). Dutcher
 " May 20, 1898. " Braislin, p. 41
 Whitesboro, Oneida co., N. Y. Fall of 1893. Bagg, *Auk*, 11: 162

Order TUBINARES

Tube-nosed Swimmers

Order Procellariiformes, Sharpe's Hand-List

Nostrils tubular; bill epignathous, hooked and enlarged at the tip; covering of bill in several horny plates, showing sutures between; hind toe very small or wanting, elevated; wings usually long and pointed; ten stiff primaries; 10 to 30 short secondaries, the fifth wanting; tail rather short, usually of 12 or 14 feathers; palate schizognathous; nasals holorhinal; also numerous other characters of internal anatomy; plumage very compact and oily; the body often so fat that it can be used as a lamp or candle; sexes alike; seasonal changes in plumage, if any, not determined; color inclining to uniformity, mostly sooty and white; a single egg laid on the ground or in a burrow.

These birds are pelagic in distribution, frequenting the shore only for purposes of reproduction, and never found inland except when driven astray by storms. The species are largely cosmopolitan, often ranging

over the entire ocean, the petrels, or Mother Carey's chickens, and albatrosses being among the best known of birds. There is an unusual range in size in this order from the Stormy petrel, the smallest of natatorial birds, to the Giant albatross whose wing expanse is unsurpassed in the whole bird kingdom. They have no equals in the power of flight, even among the Longipennes, practically living in the air and snatching their food of marine animals and oily matter from the surface of the sea. Authorities are at variance as to the number of families but four are usually recognized. The albatrosses (Diomedidae) and diving petrels (Pelecanoididae) are not found in the nearctic region.

Family **PUFFINIDAE**

Fulmars, Shearwaters and Petrels

Medium or large in size; first primary as long or longer than second; basipterygoids present; coracoids short, with broad bases and widely diverging axes; hypocleidium of furcula short; sternum with uneven posterior margin.

The fulmars (Fulmarinae) have the bill stout, the nasal tubes prominent with a thin partition between them, the under mandible not hooked, the upper mandible with rudimentary or well developed lamellae, and the tail of 14 or 16 feathers. The shearwaters and petrels (Puffininae) have the under mandible hooked, the tubes low with thickened partitions, no lammellae, and the tail of 12 feathers.

Fulmarus glacialis (Linnaeus)

Fulmar

Procellaria glacialis Linnaeus. Syst. Nat. 1766. Ed. 12. 1: 213
Fulmarus glacialis A. O. U. Check List. Ed. 2. 1895. No. 86

ful'marus from Eng. fulmar; *glaciä'lis*, of the ice

Description. Head, neck and under parts white; mantle pearl-gray; bill greenish yellow; feet gray, or yellowish; quills ashy brown. *Dark phase:* Upper parts smoky gray, somewhat paler below. Length 18-20 inches; wing 12.5-13.5; tail 4.5-5; bill 1.3-1.8; average 1.5; depth of bill .75; tarsus 2.

The Fulmar, or Noddy, of the north Atlantic has been taken in winter as far south as Massachusetts and New Jersey, although we can find no valid record of its occurrence within the limits of New York State. It is undoubtedly an occasional winter visitant off our coast where it might easily be overlooked by the inexperienced because of its general resemblance to the common gull.

Puffinus borealis Cory*Cory Shearwater*

Puffinus borealis Cory. N. O. C. Bul. April 1881. 6: 84
A. O. U. Check List. Ed. 2. 1895. No. 88

puff'inus from Eng. puffin; *boreā'lis*, Lat., northern

Description. Brownish ash, tipped with white on neck and upper tail coverts; white below; under eyelids and under tail coverts mostly white; bill yellowish.

Length 20.5 inches; wing 14.5; tail 6.5; bill 2.25; depth of bill .75; tarsus 2.2; middle toe and claw 2.9.

The Cory shearwater was first described from a specimen taken on Cape Cod, Chatham Island, October 11, 1880 [see N. O. C. Bul. 6: 84]. Numerous specimens have since been taken on the coasts of Massachusetts and Long Island. From the latter part of September till November 1886, this Shear-



Cory shearwater. *Puffinus borealis* Cory. From specimen in American Museum of Natural History, $\frac{2}{3}$ nat. size

water appeared in enormous numbers off Point Judith, R. I., Buzzard's bay and Vineyard sound, Mass., feeding on the herring which occurred there in unusual abundance [see Baird, Auk, 4:71]. The following are our New York records:

Gardiners bay, L. I. Sept.-Oct. 1886. (Worthington). Chadbourne, Auk, 5: 202
 Amagansett, L. I. About Oct. 18, 1887. Dutcher, Auk, 5: 175
 Ram island shoals, L. I. Oct. 20, 1887. ♂ ♀ Dutcher Collection
 Little Gull Island. Aug. 6-16, 1888. (2). Dutcher, Auk, 6: 128
 Montauk, L. I. Nov. 29, 1889. (1). (Scott). Dutcher, L. I. Notes
 Off Fire island inlet, L. I. Oct. 4, 1902. (2). Braislin, Auk, 21: 287

It is an uncommon summer visitant off Long Island but its breeding grounds, probably in the southern seas, are unknown. By the early writers it was confused with the Greater shearwater, but, as far as I know, no specimens have been found in the Giraud and Lawrence collections. According to Baird these shearwaters, as observed off the coast of Cape Cod, in 1886, occurred in flocks of from fifty to two or three hundred and were "generally found resting quietly on the water and feeding while swimming, on the herrings that were so abundant in the vicinity. They were very tame." According to Dutcher the specimens seen in Gardiners bay were associated with the jaegers and like them were engaged in the occupation of robbing the terns. He did not see them alight on the water.

***Puffinus gravis* (O'Reilly)**

Greater Shearwater

Procellaria gravis O'Reilly. Voyage to Greenland. 1818. p. 140, pl. 12, fig. 1

Puffinus cinereus DeKay. Zool. N. Y. 1844. pt 2, p. 287, fig. 297, 298

Puffinus major A. O. U. Check List. Ed. 2. 1895. No. 89

grā'vis, Lat., heavy, great

Description. Upper parts fuscous, the feathers edged with ashy; white below, with brownish patches on the flanks; under tail coverts ashy gray; bill blackish.

Length 18-20 inches; extent 42-45; wing 13; tail 5.75, graduated for one inch; bill 2; depth of bill .65; tarsus 2.4; middle toe and claw 2.9.

The Greater shearwater, Wandering shearwater and Cinereus puffin of Giraud and DeKay, is recorded as a rare visitant to our shores by those early writers. Chapman calls it irregularly common from early June till November. Dutcher calls it "uncommon in summer," his only New York specimens (2) being from Gardiners bay, August 1884.

The long, narrow wings are set stiffly at right angles with the body, and the bird frequently glides half a mile at a time without moving them perceptibly. It usually follows a direct course, and invariably skims over the waves. I know of no other sea bird whose movements are as easy and graceful. [Brewster]



Greater shearwater. *Puffinus gravis* (O'Reilly). From specimen in State Museum, $\frac{1}{2}$ nat. size

***Puffinus puffinus* (Brünnich)**

Manx Shearwater

Procellaria puffinus Brünnich. Ornith. Borealis. 1764. p. 29

Puffinus puffinus A. O. U. Check List. Ed. 2. 1895. No. (90)

In color similar to Audubon shearwater.

Length 13.5-15 inches; extent 30-33; wing 8.75-9.25; tail 3.1, graduated .75; bill 1.4; depth of bill .45; gape 2.1; tarsus 1.8.

The Manx shearwater is of rare, or accidental occurrence, in North America. Giraud and Lawrence recorded it from Long Island, but as no specimens from that locality have been found in their collections, it is probable that their records refer to the next species.

Puffinus lherminieri Lesson*Audubon Shearwater*

Puffinus lherminieri Lesson. Rev. Zool. April 1839. 102

Puffinus obscurus DeKay. Zool. N. Y. 1844. pt 2, p. 288, fig. 294

Puffinus auduboni A. O. U. Check List. Ed. 2. 1895. No. 92

lherminieri, of Felix Louis L'Herminier

Description. Above dark brownish black, white below, marked with blackish on flanks and under tail coverts; bill dull leaden blue, blackish at tip; webs and inside of tarsi yellowish, outer sides brownish.



Audubon shearwater. *Puffinus lherminieri* Lesson. From specimen in State Museum. $\frac{1}{4}$ nat. size.

Length 11-12 inches; extent 26; wing 7.5-8; tail 4.25, graduated one inch; bill 1.25; depth of bill .4; gape 1.7; tarsus 1.6; middle toe and claw 1.8.

The Audubon shearwater, also called Dusky and Little Shearwater, is a southern species and rarely visits the coast of this State. The only recent record is of a specimen taken in Great South bay, opposite Bellport, L. I., August 1, 1887 [see Dutcher, Auk, 5:173].

"Its flight, low over the water, is strong and swift, five or six rapid wing beats being followed by a short sail." [Chapman]. According to Giraud and DeKay it is an occasional straggler to the coast of Long Island.

Puffinus griseus (Gmelin)*Sooty Shearwater*

Porcellaria grisea Gmelin. Systema Naturae. 1788. 1: 564

Puffinus stricklandi A. O. U. Check List. Ed. 2. 1895. No. 94

griseus, Lat., dark

Description. Sooty black; under parts slightly grayish; bill and eye blackish.

Length 16-18 inches; extent 40; wing 11.5-12; tail 4; bill 1.75-2; gape 2.33; tarsus 2.25; middle toe and claw 2.5.



Sooty shearwater. *Puffinus griseus* Strickland. From specimen in American Museum of Natural History. $\frac{1}{2}$ nat. size

The Sooty shearwater, or Black hagdon, appears off our coast in summer associated with the Greater and Cory shearwaters, but is less common than *Puffinus major* with which it agrees in habits. At a distance, according to Brewster, "it looks as black as a crow," and hence can easily be distinguished from the other species. This bird is now regarded the same as the Old World species, but for years was held to be distinct.

Aestrelata hasitata (Kuhl)*Black-capped Petrel*

Procellaria hasitata Kuhl. Mon. Proc. Beitr. Zool. 1820. 1 Abt., p. 142

Aestrelata hasitata Kuhl. A. O. U. Check List. Ed. 2. 1895. No. (98)

aestrē'lata (more correctly oestrelata), Gr. *οἰστρήλατος*, driven by a gad-fly,

frantic; *hasitā'ta* (more correctly haesitata), Lat., stuck, the

discoverer was in doubt about it (Coues)

Description. Cap, bar on side of the head, mantle, wings and end of tail, fuscous; rest of head, neck, base of tail and under parts white; bill and feet black; legs flesh-colored.

Length 16 inches; extent 39.5; wing 11.5-12; tail 5.25, gradation 1.5; bill 1.4; depth of bill .66; tarsus 1.4; middle toe and claw 2.12.

This species is a rare straggler from the southern seas, sometimes being driven inland by storms. A specimen from Quogue, Long Island, July 1850, is recorded by G. N. Lawrence in the Annals of Lyceum of Natural History of New York, volume 5, page 220. A specimen was secured on Verona beach, Oneida lake, August 28, 1893, by Rev. G. A. Biederman and reported by Bagg [Auk, 11:162]. Mr L. S. Foster reports a specimen in his collection "taken in Cayuga county, September 1893." Another specimen was captured alive in a snow bank at New Paltz, Ulster co., January 26, 1895, recorded by Foster [Auk, 12:179].

Aestrelata scalaris Brewster*Scaled Petrel*

Aestrelata scalaris Brewster. Auk, July 1886. p. 300

A. O. U. Check List. Ed. 2. 1895. No. (99)

scalā'ris, Lat., pertaining to a ladder, referring to the markings on the back

Description. Cinereous above and running down the sides of the neck, sides and abdomen; under parts white; immaculate on the chin, throat, center breast and the under tail coverts; feathers of back and wing coverts tipped with white, giving it a peculiar scaled appearance.

Wing 9.88 inches; tail 3.95, graduated .9; bill 1.03; height of bill .46; tarsus 1.37; middle toe and claw 1.7.

For the original and complete description the reader is referred to Brewster, *Auk*, volume 3, pages 389-93.

This species was made known to the scientific world from a specimen secured in this State and noted by Mr Brewster, in Bulletin Nuttall Ornithological Club, volume 6, pages 91-97. The story of its discovery may be interesting to some of our readers. "Some months since while passing the natural history store of W. J. Knowlton, Tremont street, Boston, my attention was attracted by a mounted petrel, which, with spread wings, hung conspicuously in the window. I saw at once it was a species new to me and, upon entering, was greatly astonished to learn that it had been received only a short



Scaled petrel. *Aestrelata scalaris* Brewster. Photo from type specimen taken at Mount Morris. Now in Mr Brewster's collection. $\frac{1}{2}$ nat. size

time before *in the flesh*, and in a comparatively fresh condition. Further inquiries elicited the information that it had been mounted for Mr E. H. Woodman of Concord, N. H., and upon writing to that gentleman, I was very kindly put in the possession of the following particulars. The bird had been sent him by a client, Mr Nathan F. Smith, who conducts a large farm at Mt Morris, Livingston co., New York. One of the laborers while ploughing an old cornfield, noticed it running in a freshly turned furrow and despatched it with a stick. It was apparently exhausted, for it made no attempt to escape. This was early in April 1880, probably not far from the 5th of the month, as I find its reception recorded on Mr Knowlton's books as April 10. A letter afterwards received from Mr Smith confirms all of these facts, but adds nothing of interest, save that the farm com-

prises what is known as flats, lying along the Genesee river, about 40 miles south of Lake Ontario." Other specimens have since been taken in New Zealand, one of which is in the State collection.

Family **PROCELLARIIDAE**

Stormy Petrels

Small in size; first primary shorter than second; both mandibles hooked; nasal tubes prominent with thin partition; tail of 12 feathers; wings of moderate length; hallux minute; no basipterygoids; coracoids slender, their axes only slightly diverging; a long manubrium of the furcula; rear border of sternum even.



Stormy petrel. *Thalassidroma pelagica* (Linnaeus).
From Audubon, *Birds of America*

There are two well marked sub-families of the Stormy petrels, which some would give the rank of families. The *Procellariinae* are short-legged, tibia slightly bare, with numerous secondaries, and sharp, curved, compressed claws. The *Oceanitinae* have long legs, the tibia bare an inch or more, *only 10 secondaries*, and broad, flat, blunt claws.

***Thalassidroma pelagica* (Linnaeus)**

Stormy Petrel

In color similar to Wilson petrel, excepting the wing coverts, which are not tipped with whitish as in that species. Size much smaller.

Length 5.5-5.75 inches; wing 4.5-4.8; tail 2.5; bill .45; tarsus .9; middle toe and claw .82.

The Stormy or Least petrel is said to be the most abundant species of bird in the world. Though common on the European side of the Atlantic, it is rarely found on the American side.

It has been ascribed to Long Island by Giraud and Lawrence, but no definite records have been given and no specimens of this bird from Long Island have been found in their collections. If it occurs at all on our coast, it must be very rarely, or at a considerable distance offshore.

Oceanodroma leucorhoa (Vieillot)*Leach Petrel*

Procellaria leucorhoa Vieillot. Nouv. Dict. d'Hist. Nat. 1817. 25: 425
Thalassidroma leachi DeKay. Zool. N. Y. 1844. pt 2, p. 291, fig. 295
Oceanodroma leucorhoa A. O. U. Check List. Ed. 2. 1895. No. 106

oceanō'droma, Gr. *Ωκεανός*, ocean, and *δρόμος*, running; *leuco'rhoa*, Gr.
λευκός, white and *ὄρρος*, rump

Description. Sooty blackish, browner below; wing coverts grayish brown; upper tail coverts white, the shorter ones mixed with brownish; bill and feet black; iris brown; *tail forked*.

Length 7.5-8.9 inches; extent 17-18; wing 6-6.5; tail 3.5-4, *forked* .75-.9; tarsus .9-1; middle toe and claw 1; bill .67.

The Leach or common Forked-tail petrel inhabits the seas of the holarctic region in general, breeding from the Hebrides and the coast of Maine northward, and migrating southward in winter as far as Virginia and



Leach petrel. *Oceanodroma leucorhoa* (Vieillot). From Audubon. *Birds of America*. $\frac{2}{3}$ nat. size

southern seas, where it nests during the antarctic summer. It thus represents with us better than any other species the reverse of normal migration. Mr Dutcher's dates are from June 1 to September 14. Sometimes it appears in great numbers at Rockaway, Fire Island inlet and Gardiners bay, during June, July and August. A specimen from Lockport, N. Y., October 1875, is reported by Davison, *Auk*, volume 1, page 294; and David Bruce had a specimen from Orleans county, N. Y., taken in November 1882.

This is the common Stormy petrel, or Mother Carey's chicken, of our sailors, which is so often seen coursing back and forth about the ship waiting for scraps of food to be thrown overboard.



Wilson petrel. *Oceanites oceanicus* (Kuhl). From Audubon, *Birds of America*. $\frac{1}{2}$ nat. size

Order STEGANOPODES

Totipalmate Birds

Order Pelecaniformes, Sharpe's Hand-List

Feet completely webbed, the hind toe being large, low down and partly lateral, connected with the inner toe by a full web; bill horny, usually hooked at the tip and furnished with a nail; gape very capacious; nostrils very small or rudimentary; a gular pouch; tongue small and knoblike; palate decidedly desmognathous; basipterygoids wanting; sternum short and broad; upper arm bones very long.

Birds of this order number about seventy species included in six families, the darters, or snake birds (*Anhingidae*) not being found in New York,

and the tropic-birds and frigate-birds represented by accidental wanderers. They are all altricial or nidicolous in nature. The eggs are single or few, usually plain colored, but covered with a chalky incrustation. They build their nests on the ground, rocky ledges, or brushy trees near the water, and are wholly carnivorous in diet, the food consisting almost entirely of fish.

Family **PHAËTHONTIDAE**

Tropic-birds

Bill stout, nearly straight, pointed, the two mandibles of equal length; nostrils distinct, linear; head large; neck short; gular pouch very small and feathered; tail of 12 to 16 feathers, the two middle ones in the adult, plumelike and extremely elongated; wings rather long and pointed; primaries very long; feet small and the hind toe more elevated than usual in this order, but fully webbed; plumage satiny, mostly white.

The tropic-birds are confined to the warmer seas, six species being recognized, three of which reach the United States. They resemble terns in general appearance, are gregarious in habit, and strong and swift in flight. They lay a single egg in some hole in the rocky cliff. The egg, like many features of the family, is aberrant for this order, being mostly of a chocolate color like a kestrel's, boldly spotted and blotched with brown and black.

Phaëthon americanus Grant

Yellow-billed Tropic-bird

Phaëthon americanus Grant. Brit. Orn. Club Bul. Dec. 1897. 49: 24;
Ibis Apr. 1898. p. 288

Phaëthon flavirostris A. O. U. Check List. Ed. 2. 1895. No. 112

phā'ëthon, Gr. & Lat., son of Helios, or the Sun; *americā'nus*, of America

Description. White; stripe through the eye, oblique wing bands, flank stripes and tail shafts black; bill and feet yellow, toes black. *Young:* similar, but marked with black bars and crescents.

Wing 7 inches; tail 16-21; bill 2.

A single specimen of this tropical species was captured near Knowlesville, Orleans co., N. Y., in September 1876. It was an immature bird and was taken alive and finally preserved by Rev. J. H. Langille, who



Yellow-billed Tropic-bird. *Phaethon americanus* Grant. New York specimen (immature) in State Museum.
 $\frac{1}{2}$ nat. size

describes its capture in *Our Birds and their Haunts*, page 615 [see also Coues, N. O. C. Bul. 5:63; compare also, Maynard's *Birds of Eastern North America*, p. 474].

Family **SULIDAE**

Gannets

Bill long, very stout at base, tapering and slightly decurved toward the tip, somewhat serrate and very deeply cleft; nostrils abortive; gular pouch naked but small; wings long and pointed; tail long and wedge-shaped of 12 to 18 feathers; legs short and stout, placed nearly at the center of body; head large; neck rather long; plumage compact; two carotids; ambiens femorocaudal and semitendinosus muscles present but the accessories absent; sternum long and narrow; coracoids directed forward; a remarkable development of the pneumatic cells extending beneath the skin and among the muscles.

There are eight or more members of this family, our species being common to the holarctic region, the others mostly to the tropical and subtropical seas. They are all maritime in habitat and gregarious in habits, congregating in immense numbers on their breeding grounds.

Sula leucogaster (Boddaert)

Booby

Pelecanus leucogaster Boddaert. Table des Planches Enluminées. 1783.
P. 57

Sula sula A. O. U. Check List. Ed. 2. 1895. No. 115

sū'la, Norse, *sula*; *leucogas'ter*, Gr. λευκός, white, γαστήρ, belly

Description. Dark brown; breast and belly white; head and neck often streaked with white; bill, lores and feet yellowish; iris white. *Young:* grayish brown, paler below; bill dark.



Booby. *Sula leucogaster* (Boddaert). From specimen in American Museum of Natural History. $\frac{1}{2}$ nat. size

Length 30 inches; extent 50; wing 14.5-16.5; tail 6.5-9.5; bill 3.25-4; gape 5; tarsus 1.5-1.9; middle toe and claw 3.5.

The Booby inhabits the tropical seas of America and sometimes straggles northward to the coast of New York and New England. A specimen in the collection of the Long Island Historical Society was taken on Moriches bay, Long Island [see Dutcher, Auk, 10:270]. Its occurrence in this State was purely accidental.

***Sula bassana* (Linnaeus)**

Gannet

Plate 9

Peilecanus bassanus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:133

Sula americana DeKay. Zool. N. Y. 1844. pt 2, p. 295, fig. 269

Sula bassana A. O. U. Check List. Ed. 2. 1895. No: 117

bassā'na, of Bass rock, the famous nesting site of the species

Description. White; primaries and their coverts blackish; head and neck washed with light yellow; bill bluish gray; lores, gular sack and feet blackish; iris yellowish white. *Young:* grayish brown, spotted with white; belly mostly white; bill and feet dusky; iris green.

Length 30-40.5 inches; extent 72; wing 17-21; tail 9-10; bill 4; gape 6; tarsus 2; middle toe and claw 4.

The Gannet occurs on our coast as a regular spring and fall migrant March 20 to May 10, and October 5 to December 20; and a few are observed in winter, "3 to 4 miles out over the cod grounds." On rare occasions it wanders to the interior of the State. At Canton, N. Y., December 10, 1879, a specimen was captured on the Grasse river [see Lee, N. O. C. Bul. 5:190]; on Saratoga lake, November 11, 1880 [see (Rich) Merriam O. & O. 6:96].

The Gannet or Solan goose inhabits the North Atlantic, breeding on rocky cliffs from Nova Scotia northward, especially Bird Rock in the Gulf of St Lawrence, and Bass Rock, Firth of Forth. They feed on fish, which they secure by diving from a considerable height in the air and pursuing under water.

Family PHALACROCORACIDAE

Cormorants

Bill as long as head, nearly cylindrical, strongly hooked at tip, edges jagged; gape very deep; wings strong, stiff and comparatively short; tail long, tipped and fan-shaped of 12 to 14 feathers; body heavy; neck long; legs set far back. Consequently cormorants stand in a more or less vertical position like grebes, and like them dive from the surface of the water, and pursue their prey, using their wings under water like the diving ducks. There are 30 or more species of Cormorant, inhabiting all parts of the world, 10 of them occurring in North America. Besides the two occurring in New York, a third, the Florida cormorant, has approached our western borders [see Langdon, Jour. Cin. Soc. Nat. Hist. 3:229].

Phalacrocorax carbo (Linnaeus)*Cormorant*

Plate 9

Pelecanus carbo Linnaeus. Syst. Nat. Ed. 10. 1758. 1:133

Phalacrocorax carbo DeKay. Zool. N. Y. 1844. pt 2, p. 292

A. O. U. Check List. Ed. 2. 1895. No. 119

phalacrō'corax, Gr. & Lat., a cormorant, from *φαλακρός*, bald, and *κόραξ*, raven; *car'bo*, Lat., charcoal

Description. *Breeding plumage:* Mostly glossy black, the back and wing coverts bronzy gray edged with black; wings and tail grayish black; fringe of pouch, threadlike plumes on head and neck, and flank patches white; pouch yellow; iris green; feet black; occipital crest black. *Winter:* No crest or white feathers on the head and flanks. *Immature:* Brownish gray and blackish, darkest on the hind neck, rump, sides and under tail coverts; grayish below, the *belly* largely *white*. Tail of 14 feathers.

Length 34-40 inches; extent 60; wing 12-14; tail 6-7.75; bill 2.85-3.4; gape 4; tarsus 2.5.

The Common cormorant, or Shag, is a maritime species rarely found in the interior of the State, but occurs as a transient visitant in small numbers off the shores of Long Island, September 22 to November 8. Most of the records from the interior of New York probably refer to the next species, as I have seen no specimen from our inland waters.

The Common cormorant like the Gannet is characteristically maritime in habitat and agrees with that species in distribution.

Phalacrocorax auritus (Lesson)*Double-crested Cormorant*

Plate 9

Carbo auritus Lesson. Traité d'Ornithologie. 1831. p. 605

Phalacrocorax dilophus DeKay. Zool. N. Y. 1844. pt 2, p. 293, fig. 267, 268

A. O. U. Check List. Ed. 2. 1895. No. 120

auritus, Lat., eared

Description. *Breeding plumage:* Mostly glossy black, the back and wing coverts coppery gray edged with black; a tuft of curly black feathers on each side of the head; a few white filaments over the eye; lores and pouch orange; eyelids and mouth deep blue; iris green; feet black. *Winter:* No crest; eyelids dull. *Immature:* Mostly grayish brown, blackish on rump, sides and lower belly; throat and breast brownish white; gular sack and base of bill yellowish. *Tail feathers* 12.

Length 30-34 inches; extent 50; wing 12-13; tail 6-7; bill 2.3-2.5; gape 3.5; tarsus 2.1.

This is by far the commonest of the order Steganopodes in our State. It is a common transient visitant on Long Island in April and May (April 3 to May 23 and June 29) returning from the north August 12 to September 17, and last seen October 26 to November 5. It is also found on the Great Lakes and other inland waters as an uncommon migrant. Verdi Burtch reports a specimen from Branchport, Yates co., August 14, 1886, but most of the records for the interior are late in the season, as follows: Onondaga lake, November 30, 1865; Cayuga lake, November 16, 1875; Lansingburg, November 13, 1879; Cornwall-on-the-Hudson, October 10, 1883 and November 4, 1889; Troy, September 21, 1888; Buffalo, October 11, and November 3, 1894; Canandaigua, November 7, 1899; Cayuga lake, September 29, 1905; Buffalo, October 24, 1907; Erie, Pa., October 26-December 14 (Todd). There are only two spring records from the interior, Sing Sing, June 22, 1876 (Fisher); Crane lake, May 17, 1897 (Taylor).

Cormorants are gregarious in habit, and in flight resemble the larger ducks, especially the mergansers. They feed on fish, which they take by diving after them from the surface of the water, or from a low perch. They often alight on large trees near the water, when their peculiar shape and

attitude at once distinguish them from all our other birds. The Double-crested cormorant is a species of eastern North America, breeding from Dakota and New Brunswick northward, and wintering from the 38th parallel to the Gulf of Mexico.

Family **PELECANIDAE**

Pelicans

Characters. Totipalmate birds of large size and great expanse of wing; bill very long, straight, flattened and grooved, and furnished with a hawk-like hook at the tip; an enormous pouch fitted to the branches of the lower mandible which serves as a net in catching fish; lores and pouch bare; feet very stout; tail short, of many feathers.

Pelicans are mostly confined to warm regions, nesting in large colonies usually on islands, placing the nest on or near the ground. Eggs are from two to five in number. The young are altricial in nature. They are fed on fish brought to them by their parents. In feeding they thrust their bills down the parent's gullet until their whole head is sometimes out of sight. This peculiar habit coupled with the fact that the pelican's pouch and gullet is often bloody from wounds made by the spines of fishes which it has swallowed, undoubtedly gave rise to the legend that the pelican nourishes its young with blood from its own breast. White pelicans fish in companies, driving the fish before them and scooping them up as they come to the surface; but brown pelicans catch their prey by plunging from a height of 20 feet, or more, as they course back and forth above the water and the resulting splash may be heard for a half mile [Chapman].

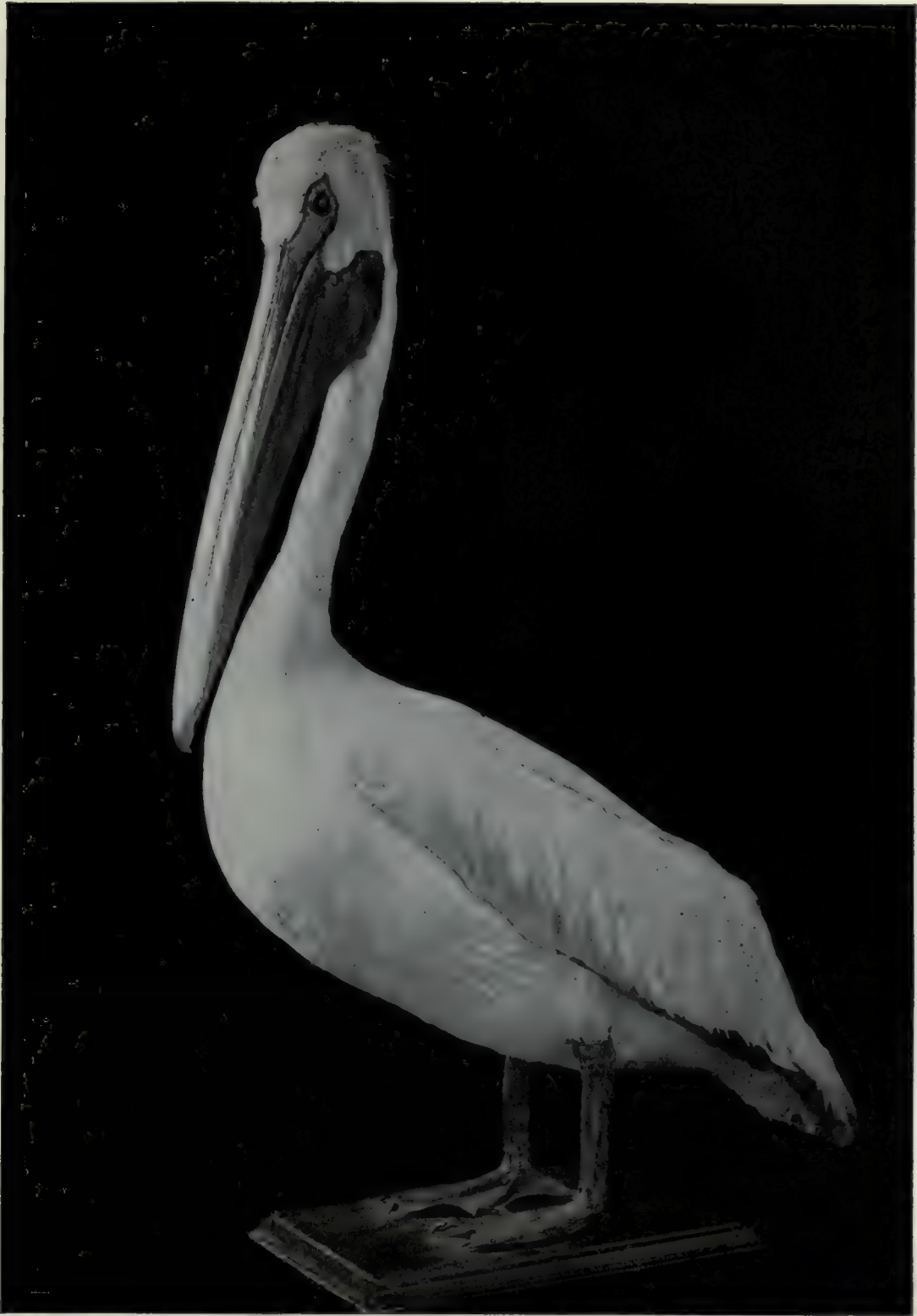
***Pelecanus erythrorhynchos* Gmelin**

American White Pelican

Pelecanus erythrorhynchos Gmelin. Syst. Nat. 1788. Ed. 1. 2: 571
A. O. U. Check List. Ed. 2. 1895. No. 125

pelecā'nus, Lat., pelican; *erythrorhyn'chus*, Gr. ἐρυθρός, red, and ῥύγχος beak

Description. *Breeding plumage:* White; primaries black; occipital crest and wing coverts dull yellow; a horny prominence on the bill. *In*



White pelican. *Pelecanus erythrorhynchos* Gmelin. Cayuga specimen in State Museum.
 $\frac{1}{2}$ nat. size

winter: No crest or horn. Bill, pouch, eyelids and feet yellow, nearly red in the breeding season; iris white. *Young:* Brownish on the top of the head, otherwise white.

The White pelican is a rare straggler on the waters of New York State. In colonial days it was more common according to reports, but now, like the cranes and swans, it confines its migrations mostly to the Mississippi valley and western America. Eleven specimens have been recorded from this State:

Saratoga lake, N. Y. Nov. 1788. Munsell, *Annals of Albany*, 1: 275
 Canarsie bay, L. I. L. I. Hist. Soc. Col. Dutcher, *Auk*, 10: 270
 Chautauqua lake, N. Y. About 1860. A. C. Kibbe
 Lake Champlain, N. Y. Oct. 15, 1862. F. T. Pember
 Cayuga lake, N. Y. Spring 1864. (2). Beal, *Am. Nat.* 1: 323
 Roslyn, L. I. May 11, 1885. S. H. West, *Forest and Stream*, 24: 328
 Cayuga, N. Y. Early fall 1888. (Foster Parker) N. Y. State collection
 Geneva, N. Y. May 10, 1892. Seen by Truman R. Taylor
 Onondaga lake, N. Y. Fall 1893. W. M. Beauchamp of Baldwinsville, N. Y.
 Buffalo, N. Y., Niagara river. Oct. 5, 1894. Savage, *Auk*, 12: 313

***Pelecanus fuscus* Linnaeus**

Brown Pelican

Pelecanus fuscus Linnaeus. *Syst. Nat.* Ed. 12. 1766. 1: 215
Pelecanus fuscus DeKay. *Zool. N. Y.* 1844. pt 2, p. 294, fig. 226
 A. O. U. Check List. Ed. 2. 1895. No. 126

fus'cus, Lat., dusky

Description. Upper parts silvery gray, bordered on back and sides with brownish black; primaries black; under parts blackish, streaked with white; crown and breast spots straw-yellow; back of head and neck and spot on the foreneck seal-brown; a white line down each side of the breast; the pouch and feet blackish; eye space blue; eyelids red; iris white; bill mottled. *After the breeding season:* Neck and hind head white, tinged with yellow; young similar, but the plumage much duller.

Length 50-54 inches; extent 78; wing 18.5-21; tail 7; bill 11-12; tarsus 2.5; middle toe and claw 4.5.

The Brown pelican breeds as far north as South Carolina, and rarely straggles up the coast to Massachusetts and Maine; but the only record which can be attributed to this State is a specimen taken off Sandy Hook, and reported by DeKay, in his *Birds of New York*, page 294.

Family FREGATIDAE

Man-o'-war Birds

Characters. Steganopodes with long, straight beak hooked at the end; small pouch and feathered lores; tail long, forked, of 12 feathers; feet very small, the middle toe long and pectinate. Frigate-birds have an expanse of wing and power of flight which, in proportion to their size, surpasses all other birds. The common name of this bird is derived from its swiftness of flight and its habit of coursing around other birds and swooping down on them to secure their prey. It is often seen soaring with motionless wings, in the teeth of the gale, or circling almost out of sight in the air above the gathering storm. The speed and ease with which they snatch their prey from the water, or rob the gulls and terns, is often marveled at by natural history writers.



Man-o'-war bird. *Frigata aquila* (Linnaeus). Gardiner Island specimen. American Museum of Natural History.
Much reduced

Fregata aquila (Linnaeus)*Man-o'-war Bird*

Pelecanus aquilus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 133

Fregata aquila A. O. U. Check List. Ed. 2. 1895. No. 128

fregā'ta, Ital., frigate; *ā'quila*, Lat., eagle; probably *aquilus*, dark, swarthy

Description. *Adult male:* Black, glossy above. *Female:* Brownish black, lesser wing coverts grayish brown; breast and upper belly white. *Young:* Similar to female, but with the head and neck white.

Length 40 inches; extent 84-96; wing 23-27; tail 15-19, forked 8 inches, or more; bill 4.5-6; tarsus 1.

This species breeds in the tropics and is common on some of the Florida Keys, sometimes wanders northward and has been captured in Kansas, Ohio and Nova Scotia. Two specimens only have been taken in New York, the first on Faulkner's island, by Captain Brooks, in 1859 [see Am. Nat. 9: 470], the second was shot by Mr Joseph P. Miller near the lighthouse of Gardiners island, August 4, 1886, and is now in the American Museum of Natural History.

Order **ANSERES***Lamellirostral Swimmers*

Order Anseriformes, Sharpe's Hand-List

Bill lamellate, or fitted along the edges with a series of flutings, with a membranous covering, and a nail or dentrum at the tip; feet palmate, the front toes being webbed; hallux, or hind toe, free and elevated; wings of moderate length with 10 functional primaries and a remicle; secondaries about 19, the fifth wanting; legs short, the knees buried in the general body covering, and the tibiae feathered nearly to the joint; position of legs nearer center of body than in grebes and cormorants, but not so central as in gulls and placed far to the side of the broad body, giving them a peculiar waddling gait; neck usually long; plumage soft and dense, especially on the breast, with a copious covering of down; palate desmognathous; sternum long and broad; pelvis large; oil gland tufted; carotids two; ambiens, femorocaudal and its accessory and semitendinosus muscles present; gizzard large and very muscular; tongue large and fleshy, with fully developed glossohyal bone.

This order contests with the order Gallinae the place of greatest economic importance among birds. It comprises all the so called waterfowl, and their general appearance and habits are well known through their familiar

representatives in the park and barnyard. They are ptilopaedic and precocial in nature, i.e. the young are covered with down and follow their mother at once. The nest is placed on the ground, or among the rocks, or in hollow stumps or trees. The eggs are usually numerous, oval in shape and plain in color.

Family **ANATIDAE**

Ducks, Geese and Swans

The characters of this family are practically the same as those of the order defined above. There are two hundred or more species in the family, found in all parts of the world. They are of great value on account of the food and feathers which they furnish as well as the entertainment they afford the sportsman and nature lover during their yearly migrations.

The family as represented in New York is composed of the Merginae (mergansers), Anatidae (river ducks), Plectropterinae (wood ducks), Fuligulinae (sea ducks), Erismaturinae (stiff-tailed ducks), Anserinae (geese), and Cygninae (swans).

Subfamily **MERGINAE**

Mergansers

Bill nearly cylindrical with a hooked and overhanging nail; lamellae toothlike, giving them the name of Sawbills; tarsi compressed, scullate in front; hallux lobate; tail rounded, about half as long as wings, of 16 to 18 feathers; head more or less crested; body rather long; gullet capacious.

Mergansers are well adapted to their diving habits and are mostly piscivorous in diet. There are about eight species in the subfamily, inhabiting the holarctic and neotropical realms.

Mergus americanus Cassin

American Merganser

Plate 10

Mergus americanus Cassin. Acad. Nat. Sci. Phila. Proc. 1853. 6: 187

Mergus merganser DeKay. Zool. N. Y. 1844. pt 2, p. 318, fig. 264

Merganser americanus A. O. U. Check List. Ed. 2. 1895. No. 129

mer'gus, Lat., diver

Description. *Male*: Head and upper neck greenish black; lower neck, wing coverts and middle secondaries white, the coverts crossed by a black

bar; lower parts white, tinted with salmon-pink when freshly killed; back and inner scapulars black; outer scapulars white; inner secondaries black and white; rump and tail ashy gray; bill and iris red; legs and feet bright orange. *Female and immature*: Head and upper neck reddish brown, throat whitish; upper parts ashy gray; breast and belly creamy or pinkish white; white patch on secondaries and wing coverts; the female's crest quite conspicuous, but the male's short and stubby. *Downy young*: Upper head and hind neck reddish brown; upper part of body hair brown with four white spots; under parts white; one white and two brown stripes on the lore.

Length, male, 24-27 inches; extent 34-36; wing 10-11.25; tail 5; bill 2-2.25; along gape 3; front of nostril to tip 1.25; rear of nostril to lore feathers .5; tarsus 1.75-2; middle toe and claw 2.75. Female, 1 to 4 inches shorter and other dimensions correspondingly smaller.

Distinguishing marks. Old males of this species and the Red-breasted merganser can be distinguished at some distance by the reddish color of the chest in the latter and its long double crest. Females and young of both species are very similar, but the red-breasted species is smaller, the crest is double, and the feathers on the sides of its mandible extend forward forming a decided angle, while those of the American merganser do not project noticeably. The position of the nostril, however, is the best mark, being nearer the base of the bill in the Red-breasted merganser [*see* dimensions].

This bird called also Goosander, Sheldrake, Sawbill, and Wheezer or Tweezer, is fairly common and well known throughout the State. It is more northerly in distribution during winter than the Red-breasted merganser, but more southerly in summer, its nest having been found near Buffalo, Montezuma, and Little Sodus bay. It formerly bred on many of the Adirondack lakes, but now is disturbed by summer tourists and fishermen to such an extent that it is fast disappearing from the more frequented waters of that region. During the colder months this Merganser is found on the open waters of the State, and often visits the rapid streams on its fishing excursions. In April or early in May the last stragglers have gone north to their breeding grounds and return in October or early November, when the young, or reddish headed birds are almost the only individuals seen.

Like the other mergansers, this species usually splashes on the water with its feet when taking wing, but is a strong flier when fully under way. Young birds, before the wing feathers are grown, will flop and run over the water so swiftly that two men in a canoe will scarcely overtake them, and, even if overtaken, they dive so expertly that it is almost impossible to capture them. The brood remains together on such occasions unless too closely pursued, when they suddenly scatter and collect again after the danger is past. The mother bird is deeply concerned for the welfare of her young and flies ahead whistling and calling to her ducklings with every evidence of distress.

This bird feeds on fish, crayfish and other aquatic animals which it captures by diving, an occupation to which its long, arrowlike shape and broad, strong feet are peculiarly adapted. On one occasion I fired into a flock of Sawbills at close range, bringing down four of the birds, but all of them plunged into the water like so many stones, and only one of them ever so much as gave me a glimpse of himself again.

The nest of this merganser is placed in an old stump, or a hollow tree near the water, and is made of grass and leaves, lined with down. The eggs are from 6 to 11 in number, of a creamy buff color, and measure 2.65 by 1.75 inches.

Mergus serrator Linnaeus

Red-breasted Merganser

Plate 10

Mergus serrator Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 129

DeKay. Zool. N. Y. 1844. pt 2, p. 319, fig. 266

Merganser serrator. A. O. U. Check List. Ed. 2. 1895. No. 130

serrā'tor, Lat., sawyer, referring to the sawbill

Description. *Male:* Head and upper neck dark glossy green; occipital crest long, pointed and double; a white collar nearly surrounds the lower neck; back and inner scapulars black; outer scapulars and mirror white with black; rump and flanks with gray vermiculations; elongated feathers in front of wing black and white; upper breast and sides of lower neck pale chestnut, dashed with blackish; breast and belly white usually tinged with salmon color; sides with wavy grayish vermiculations; bill and iris red;

feet reddish orange. *Female and immature:* Head and neck reddish brown, but paler and duller than in the preceding species and more tinged with cinnamon; back ashy gray; mirror and under parts white. *Downy young:* Upper parts dark hair-brown; spot on each side of rump and rear border of wing yellowish white; cheek and under parts yellowish white; sides of head and neck cinnamon; lores pale with dusky stripe above and one below; lower eyelid grayish white.

Length 20-25 inches; extent 30-34; wing 8.5-9.45; tail 4; tarsus 1.7-1.9; middle toe and claw 2.6; bill 2.2-2.5; gape 2.6-2.75; nostril to tip 1.65; rear of nostril to lore feathers .3. The female the smaller.

The Red-breasted merganser, Sawbill, Indian, or Pied sheldrake, as this species is called, is one of the most abundant ducks along the coast and on the inland waters. It occurs chiefly as a migrant, appearing after the ice has disappeared from our lakes and rivers, and remaining sometimes in large flocks, till late in May when they pass further north to their breeding grounds. A few are known to nest in the Adirondacks, but most of the mergansers of that region belong to the preceding species. The eggs are laid upon the ground in a down-lined nest, carefully concealed in the grass or brushwood. They are 6-12 in number, of a buffy white color, slightly smaller than those of the American merganser.

These mergansers are often observed to hunt in company, a large flock sometimes advancing with wide extended front, driving the fish before them and diving simultaneously so that whichever way their prey may dart there is a serrated beak and capacious gullet ready to receive them. We have often witnessed exhibitions of this habit on the waters of Lake Ontario where these birds are very common during the months of April and May. Occasionally a fish is captured which proves too unwieldy to handle, and, becoming firmly lodged in the merganser's mouth, brings death to its assailant in return for his merciless gluttony.

Mergansers are scarcely fit for food, the flesh being rank and ill-flavored. At the same time they are very wary and hard to kill, so that there is little danger of their extermination, their nesting grounds being on the unfrequented lakes of the boreal zone. Unlike the preceding species this merganser is holarctic in distribution, in America breeding from the Northern States to the arctic regions, and wintering from the Great Lakes to the Gulf of Mexico.

Lophodytes cucullatus (Linnaeus)*Hooded Merganser*

Plate 11

Mergus cucullatus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 129

DeKay. Zool. N. Y. 1844. pt 2, p. 320, fig. 265

Lophodytes cucullatus. A. O. U. Check List. Ed. 2. 1895. No. 131*lophod'ytes*, Gr. λόφος, crest, and δῦτης, diver; *cucullā'tus*, Lat., hooded

Description. *Male:* A large helmet-shaped crest, white bordered with black; rest of head, neck and upper parts black; sides cinnamon-rufous finely barred with black; a tuft of enlarged feathers on sides of breast in front of the wing with double bars of black and white; speculum white with two black bars; inner secondaries striped along the center with white; breast and belly white; bill black, legs light brown; iris yellow. *Female:* Head, neck and upper parts grayish brown, darker on the back; the head and neck tinged with cinnamon, especially on the crest which is quite conspicuous; throat, breast and belly white; middle wing coverts and secondaries show each a patch of white. *Immature:* Similar, but crest smaller. *Downy young:* Dark hair brown above; spots on each side of back and rump, and rear border of wing grayish white; lower half of head buff, lighter on throat; chest dingy; belly white.

Length 17-18 inches; extent 25-27; wing 7.5-8; tail 4; tarsus 1.1-1.2; middle toe and claw 2.35; bill 1.4-1.5.

Field marks. The wonderful crest of the male is distinctive even at a considerable distance, our only other bird which resembles him even remotely being the Buffle-head. The female may be recognized by the slim mergine bill, cinnamon crest, and small size for a merganser.

The Hooded merganser, Swamp sheldrake, Hairy-head, or Water pheasant is generally distributed in New York State, occurring in many places where the other mergansers are unknown, because of its habit of frequenting swamps and ponds which are too small to attract the other species. It has been known to breed in the counties of Cayuga, Erie, Jefferson, Ontario, Wayne, as well as those of the Catskill and Adirondack regions, and Mr Howell has also found it on Long Island in midsummer, but there seems to be no breeding record for that district. It is rarely found throughout the winter within our borders, but is fairly common as a migrant, arriving from the south late in March and going north in April,

returning in October and November [*see* Occurrence tables]. This is a nearctic species breeding both in our austral and boreal zones and wintering from the Northern States to Cuba and Mexico.

This species inhabits the sluggish, wooded ponds and streams which are also the haunts of the Wood duck and the Heron. Consequently it does less harm by destroying fish than the other mergansers, but lives to a considerable extent on aquatic insects and even partakes at times of vegetable food. Its flesh, as might be expected, is more edible also, and for all these reasons, as well as on account of its beautiful plumage, it is one of the Duck family which might well be encouraged to live and propagate within our borders. It is one of the four species of wild ducks which breed to any extent in the State as a whole, and would do so more extensively if properly protected.

It is a beautiful sight to watch a company of these birds swimming briskly along among the lily pads, all flashing and closing their crests in time to their advance. Sometimes they may be seen perched motionless upon a rock or stump. If disturbed they make off down the stream, pattering the water in a long line of dimples as they dart away. Presently they rise and wheel about and a slight whirring of wings is heard as they shoot past above you like so many winged arrows.

Their nests are built in hollow trees of grasses and moss, lined with down. The eggs are from 7-11, creamy white, 2.12 x 1.75 inches.

Subfamily **ANATINAE**

River Ducks

Tarsi scutellate in front; hind toe simple, or without lobe. The former character separates River ducks from geese, the latter from Sea ducks. Their bills are also proportionately longer, flatter and more adapted to dabbling in water than those of Sea ducks, reaching a wonderful perfection in the Shoveler. Their feet are also smaller than in Sea ducks, their legs and necks shorter than in geese. The drakes and sometimes the ducks have a tracheal tympanum, or bony drum at the base of the windpipe, a character which is also possessed by the Sea ducks. The drakes are fine plumaged birds, usually with a bright, iridescent mirror, or beauty spot on

the wing, and more or less green on the head, and black about the tail with a whitish patch in front of it. In all our species the drakes show this tendency to a broken color pattern, some abrupt change in coloration being evident about the head, wings, and rear flanks. This may be of use for self-protection as well as rivalry, the apparent discontinuity of outline rendering the bird invisible as he sits motionless on the shore or amongst the grass and sticks.

River ducks feed in water so shallow that they can reach the bottom with their necks or by bobbing, but seldom dive, except in sport or to escape from enemies. The females are sober colored ducks, with mottled plumage, but wings similar to those of the drakes. In summer the drakes pass into the "eclipse plumage" which resembles that of the ducks. During this season they leave the ducks to rear their ducklings alone, and go into seclusion, being incapable of flight, since all the wing feathers are lost at the same time. With the autumnal molt they regain their gay plumage and retain it until the following summer. Unlike the drakes, the ducks molt only once a year. As their name signifies these ducks are more confined to the marshes and inland waters than the next subfamily.

Anas platyrhynchos Linnaeus

(*Anas boschas* on plate)

Mallard

Plate 12

Anas platyrhynchos Linnaeus. Syst. Nat. Ed. 10. 1758. 1:125
Anas boschas DeKay. Zool. N. Y. 1844. pt 2, p. 347, fig. 240
 A. O. U. Check List. Ed. 2. 1895. No. 132

a'nas, Lat., duck; *platyrhynchos*, Gr. πλατύρρυγχος, flat beak

Description. *Male adult:* Head and upper neck glossy green; a white ring around the neck just below the green; lower neck and breast purplish chestnut; under parts and scapulars grayish white finely cross marked with dusky undulating lines; back grayish brown; rump, crissum and tail coverts rich black, glossed with greenish; a white patch on sides of rump just in front of the black; central longer tail coverts recurved; tail feathers whitish; bill greenish yellow; feet reddish orange; iris brown. *Female and young:* Head and neck buffy, streaked with fuscous, darkest on the crown and a line on side of head through the eye; upper parts fuscous, the feathers with

crescents and margined with ochereous buffy; under parts ochereous buff, mottled with dusky brown; wings like the males; feet not so bright as males; bill orange-ocher, marbled with dusky. *Male in summer:* Resembles female.

Length 20-25 inches; extent 32-36; wing 10-12; tail 3-4; tarsus 1.5-1.8; middle toe and claw 2.25; bill 2-2.4; weight 2-3 lb.

Hybrids of the Mallard with the Black duck, Pintail, Green-winged teal, and other species are occasionally taken. The *Anas maxima* or Green-backed mallard of many writers is probably a hybrid between the Mallard and Muscovy duck. It is almost black in general coloration, but shows more or less of the Mallard pattern, and is nearly as large as a goose.

Distribution. The Mallard is rare, or uncommon, on Long Island and in general in the eastern part of the State. Throughout the Great Lake region and the larger marshes of the interior it is fairly common as a transient visitant, but nowhere in the State is as abundant as the Black duck, the Mallard belonging more to the Mississippi valley and western North America, the Black duck to the Atlantic coastal region. It breeds as far south as central New York and northern Missouri and as far north as Greenland and the Arctic ocean, being holarctic in distribution, but is practically absent from Labrador and the New England region. It winters from New York and northern Illinois as far south as Florida, Cuba and Panama, but chiefly in the Gulf States and northern Mexico. In New York the Mallard is occasionally found in winter on Long Island and in western New York. It breeds very rarely in the counties of Cayuga, Livingston, Monroe, Ontario, Orleans, Oswego, Seneca, and perhaps in Washington. It occurs chiefly, however, as a transient, arriving from the south from the 10th to the 20th of March in the southern portions of the State and a week or so later in the northern. They leave for the north about the middle of April, sometimes remaining till the 10th of May, and return from their breeding grounds about the 1st of October and leave for the south about the middle of November. They are commonest in the spring a few days after the marshes are free from ice and in the fall after the first sharp frosts and snow flurries.

The Mallard, Green-head, or common wild duck is well known over nearly the whole northern hemisphere and is the original of the domestic

duck, the ordinary breeds of which resemble the Mallard very closely in color, voice and habits. The Mallard's nest is placed on the ground, usually near some slough or marshy stream, sometimes on a rotten stump or even an old Crow's nest, and is thickly lined with downy feathers. The eggs are from 6 to 10 in number, smooth, of a pale greenish white, or yellowish drab, and measure 2.35 x 1.65 inches. The ducklings are olivaceous above with a pair of yellowish spots behind the wings and another on the sides of the rump; sides of head, a stripe over eyes and under parts yellowish buff.

Anas rubripes (Brewster)

(*Anas obscura* on plate)

Black Duck

Plate 12

Anas obscura DeKay. Zool. N. Y. 1844. pt 2, p. 344, fig. 241

A. O. U. Check List. Ed. 2. 1895. No. 133

Anas obscura rubripes Brewster. Auk. 1902. 19: 184; cf. Auk. 1908. 25: 362

obscura, Lat., dark, dusky; *rubripes*, Lat., red-footed

Description. General color dusky brown, the feathers edged with light rusty brown; the lower parts lighter; throat and sides of the head grayish buff, thickly streaked with blackish; top of head and a streak through the eye dark brown, narrowly streaked with buffy; rump only slightly marked with rusty and its rich dark brown often glossed with velvety greenish, especially in old drakes which have the same greenish gloss on the crown and the sides of the occiput; lining of wings white; bill yellowish green with blackish nail; feet orange-reddish with dusky shading and webs; iris brown; mirror rich violet purple, framed in black, and a thin line of white along tips of secondaries. Old drakes have redder feet, yellower bills, more distinctly spotted throats, and are distinctly larger ("*rubripes*" of Brewster 1902).

Remarks. Young and light colored Black ducks are often mistaken for Mallard ducks by the inexperienced, but there need be no confusion if the observer will remember that the Mallard always has a broad framing of white both before and behind the mirror, while the Black duck has only the black frame in front of the mirror and only a thin line of white, if any, behind it. The Mallard female also is much lighter or more buffy in color

and has a bill marbled with dusky and yellowish, while the Black duck has a plain olive-green or yellowish green bill.

Length 20-25 inches; extent 32-38; wing 10.5-12; tail 3.5-4.5; tarsus 1.5-1.8; bill 2-2.4; weight 2.7-3.5 pounds.

Distribution. The Black duck is the commonest of all our river ducks and is fairly abundant both on Long Island and in the marshes of western New York during migration season. It breeds in suitable localities, when left undisturbed, in all parts of the State, but is much more common as a summer resident in the northern counties. On the coast of Long Island it is abundant throughout the winter and is common on the central lakes as long as they remain open. On Canandaigua lake even when frozen over for its entire length this duck remains, often in large flocks, sitting on the ice in the middle of the lake and feeding in the open shallows of the outlet at night. The Black duck is commonest, however, from the time the marshes are open till the last of April, when the greater number have passed to their breeding grounds. They return in force in October and are common until late in November when the last which are to pass farther southward have departed. It is an exceedingly wary bird and soon learns to give decoys and "blinds," or "hides," a wide berth, and when disturbed on its feeding grounds will remain all day on the open lake or ocean and return to feed only when darkness has settled. Like the Mallard, the drake of this species has a low reedy quack, while the duck's note is a loud resonant *quack, quack, quack*. When frightened she will shout *quack* slowly and sharply many times in succession.

Like the Mallard the Black, or Dusky duck, feeds on wild rice, buckwheat, weed seeds and nearly all manner of vegetable substances, also devouring snails, frogs and other aquatic animals with a gluttonous greed, especially in the springtime. On the morning of October 26, 1901, I shot a Black duck from a flock of 75 birds, which were returning to Canandaigua lake from a flooded cornfield. From its gullet and gizzard I took 23,704 weed seeds, which together with a few pebbles, snail shells and chaff were the sole contents of its stomach. Of these seeds 13,240 were pigweeds (*Chenopodium* and *Amaranthus*), 7264 were knot grass (*Polygonum*), 2624 were ragweed (*Ambrosia*), and 576 were dock (*Rumex*).

This species pairs in March or earlier and begins to lay from April 18 to May 12, concealing its nest very carefully among the grass or brush-wood of swamps or waste fields, sometimes a long distance from water. The eggs are from 8 to 12 of a dingy white or yellowish drab color and measure 2.4 x 1.75 inches. The ducklings are olive-brown above with three pairs of buffy spots, one on the wings, one on the sides of the back and one on the sides of the rump; sides of the head and neck, and under parts dingy white tinged with buff; sides of the head with a narrow dusky streak through the eye, and a dusky ear patch.

The larger form of Black duck which is common in New York late in the fall and throughout the winter was described by Mr Brewster as a distinct subspecies in 1902, but is now considered untenable. The name *rubripes*, however is found to be the only tenable name for the species.

***Chaulelasmus streperus* (Linnaeus)**

Gadwall

Plate 12

Anas strepera Linnaeus. Syst. Nat. Ed. 10. 1758. 1:125
DeKay. Zool. N. Y. 1844. pt 2, p. 343, fig. 243
A. O. U. Check List. Ed. 2. 1895. No. 135

chaulelas'mus, Gr. χαίλιος, protuberant, and ἐλασμός, plate, referring to the strainers; *stre'perus*, Lat., noisy

Description. *Male:* Head and neck grayish brown or buffy barred and speckled with black; lower neck, breast, back and sides marked with half rings and wavy bars of black and white, sometimes quite dark on lower neck; rump, tail coverts and crissum, black; belly white marked with gray; middle wing coverts chestnut-red; longer coverts velvety black at their ends next to the mirror; speculum white; feet dull yellowish with dusky webs; bill bluish black; lamella fine, numerous, 30 of them protrusive; iris reddish brown. *Female and young:* Head, neck and upper parts varied with dusky and grayish white or pale and ocherous buff in pattern similar to Mallard duck; belly grayish white speckled with dusky; mirror white; bill dusky, marbled with dull orange; feet dusky yellowish; lining of wings white as in Mallard and Black duck.

Length, *male*, 20-22 inches; *female*, 18; extent 34; wing 10-11; tail 4.5; tarsus 1.6; middle toe and claw 2.2; bill 1.6-1.75.

Distinguishing marks. This species differs from all our other river ducks in having a pure white speculum. The female is often confused with the Pintail and Baldpate ducks by ordinary gunners, these species being known as Gray ducks in western New York; but by giving slight attention to the figures on plates 12 and 13 it will be easy to distinguish the difference.

The Gadwall, or Gray duck, though not common in any part of New York State, is frequently taken on the marshes of Oswego, Cayuga, Seneca, Wayne and Monroe counties, but on Long Island is considered only an accidental visitant. Dutcher records only four specimens from Long Island. Giraud obtained a few along the south shore of Long Island. Mearns found it a transient visitant along the Hudson, Merriam in the Adirondack region, and Ralph and Bagg on Oneida lake. Mr Savage calls it an accidental visitant near Buffalo and Mr Higgins near Cincinnatus. On the Montezuma marshes a very few of these ducks are seen each season, where the drake figured by Mr Fuertes in plate 12 was taken on November 20th, 1905, by Mr Foster Parker, who states that it is less common than the Shoveler. He once saw a gunner with about 20 which he had killed in "the Ponds." On two occasions I have seen this duck on Canandaigua lake, but from my records it is evident that the Shoveler outnumbers the Gadwall about 10 to 1. New York records of this species show that it occurs from March 30th (Cincinnatus) till late in April and from early October until November 24th (Gilgo, L. I.).

Audubon records on the authority of Dr Boardman that in 1812 a flock of 30 tame gadwalls was seen in Dutchess county, N. Y., which had been reared by a pair captured in a neighboring mill pond. Wilson obtained the original of his plate 71 near Seneca Falls, N. Y. DeKay stated that this species breeds in the interior of the State, but I have been unable to find any evidence of its nesting nearer than St Clair Flats and Anticosti Island. Like the Mallard the Gadwall is holarctic in distribution, in America breeding from Kansas and Colorado north to Lesser Slave Lake and Ft Churchill.

This duck has long, pointed wings, and a rather "long geared" appearance when flying. Its quack is often repeated when it is on the wing, and is somewhat shriller than the Mallard's.

Mareca penelope (Linnaeus)

European Widgeon

Plate 13

Anas penelope Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 126
DeKay. Zool. N. Y. 1844. pt 2, p. 346
A. O. U. Check List. Ed. 2. 1895. No. 136

marē'ca, Brazilian name of teal; *penē'lope*, Gr. and Lat., wife of Ulysses;
perhaps should be from *penelops*, Pliny's name for a kind of duck

Description. *Male:* Crown creamy buff; throat black; rest of head and neck cinnamon-red mostly without green or spots; rest of plumage very similar to *Mareca americana*. *Female and young:* Head and neck strongly tinged with cinnamon, otherwise like *americana* [see pl. 13].

The Widgeon, or English widgeon as sportsmen call it, is probably not so rare as has been supposed in eastern North America. There are several definite records for New York State, as follows:

Long Island. (Found in Fulton Market). Dec. 3, 1842. Giraud, Birds of L. I., p. 308-10; see also, Lawrence, N. O. C. Bul. 14: 190; Forest and Stream, 5: 339
Southampton, L. I. (Fulton Market). Jan. 6, 1873. N. T. Lawrence, N. O. C. Bul. 3: 98; see also, Forest and Stream, 10: 235
Cayuga lake, N. Y. May 1880. Fowler, Wright & Rathbun, O. & O. 7: 133
" Spring 1882. ♂. (David Copeman). F. S. Wright
Long Island. Winter 1899. Sanford, Bishop & Van Dyke. (Reference lost)
Gardiners island, L. I. Nov. 27, 1901. N. T. Lawrence, Auk, 19: 196
" Feb. 5, 1902. Braislin, Auk, 21: 288
Cayuga marshes, N. Y. Several taken. Foster Parker
Long Island. "Apparently breeding." Brewer, Bost. Soc. Nat. Hist. Proc. 1858. 6: 419

Although we have been unable to find definite dates for specimens taken on the Montezuma marshes, it is certain that several of this species have been killed there by duck hunters during the last 20 years. The testimony of my friend Mr Foster Parker, who saw these birds in the flesh, I regard as conclusive. If sportsmen will keep a sharp lookout for this duck and report all instances of its occurrence, I believe we shall find it almost as common as the Gadwall in New York.

Mareca americana (Gmelin)*Baldpate or American Widgeon*

Plate 13

Anas americana Gmelin. Syst. Nat. 1788. 1: 526
DeKay. Zool. N. Y. 1844. pt 2, p. 345, fig. 248
A. O. U. Check List. Ed. 2. 1895. No. 137

americā'na, American

Description. *Male:* Head and neck grayish white, often tinged with buffy, thickly speckled with black; the top of the head white; broad patch on sides of head behind the eyes nearly solid shiny green; forebreast and sides vinaceous; lower hind neck, back and scapulars finely waved with vinaceous or grayish white and dusky; vinaceous of sides also waved somewhat with dusky; lower breast and belly pure white; middle upper tail coverts gray and white; outer upper tail coverts, under coverts and sides of rump black; middle pair of tail feathers elongated three fourths of an inch, pointed and black; lesser wing coverts gray, middle longer coverts white—pure white in high plumage and grayish in young birds; mirror rich green turning to velvety black behind and margined with black in front; a broad pearl-gray secondary on the inner margin of the mirror, followed on the inside by four elongated secondaries which are velvety black on the outer web narrowly margined with white and penciled with white along the shafts; bill grayish blue with black tip and narrow base; feet dull bluish. *Female and young:* Head and neck dingy white speckled with dusky but without the white crown and green patch; lower breast and belly white; upper breast and sides reddish brown obscurely barred with dusky brown and the feathers tipped with grayish white; upper parts dusky brown with broken bars of rufous or buffy brown and the feathers tipped with paler; bill and feet similar to male's but duller.

Length 18-21 inches; extent 30-35; wing 9.5-10.5; tail 3.5-4.5; tarsus 1.5; middle toe and claw 2.2; bill 1.35-1.53.

Distribution and migration. The Baldpate, or American widgeon, is a fairly common migrant on the shores of Long Island and the marshes and lakes of western New York. On the Montezuma marshes, Canandaigua lake, and the bays of Lake Ontario it seems to be more common in the spring than in the fall, occurring in considerable numbers from the time when the ice goes out in March till the middle of April, a few sometimes remaining till the third week in May. It arrives at the same time as, or a few

days later than, the Pintail and is about as common as that species. It returns from the breeding grounds, which lie mostly from Minnesota to the Mackenzie valley and Alaska, the 15th of September to 10th of October, and leaves from the 10th to the 20th of November for its winter quarters, which lie from Chesapeake bay to Florida and Cuba and Mexico. Stragglers are sometimes found with us as late as December 13th.

The Baldpate or American widgeon, like the Black duck often spends the day on the open waters of our lakes and bays, especially when disturbed in the marshes, and at dusk resorts to the shallows and flooded lands to feed on the seeds of aquatic plants, tender vegetable shoots, snails and insects. The male's note is a mewing whistle resembling the syllables *whew, whew*. The female utters a loud cry like the syllables *kaow, kaow*. Its flesh is highly esteemed as food.

Nettion crecca (Linnaeus)

European Teal

Anas crecca Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 126

A. O. U. Check List. Ed 2. 1895. No. (138)

nettion, Gr. diminutive, *νήπιον*, a duckling; *crec'ca*, Lat., referring to the voice, or quack

Distinguishing marks. Similar to the Green-winged teal, but no white crescent in front of the wing; long scapulars and inner secondaries, creamy white, forming a conspicuous broad *white streak*; the dusky barring of the sides and upper parts coarser.

Females and young of this teal can scarcely be determined unless by careful comparison with authentic specimens, but seem to be browner and less finely variegated than the American bird.

This palearctic species occurs in Greenland and casually along the Atlantic coast of America. J. G. Bell reported several specimens from Long Island and the vicinity of New York taken in 1858 and earlier [see Coues, Key to North American Birds, 2: 918]. Mr Foster Parker reports



European teal. *Nettion crecca* (Linnaeus). From Hudson's *British Birds*. $\frac{1}{2}$ nat. size
 one taken in the Montezuma marshes April 10, 1902. Two males from
 Merrick, L. I. taken about December 17, 1900, reported by Braislin [*Auk*,
 19: 145].

***Nettion carolinensis* (Gmelin)**

Green-winged Teal

Plate 13

Anas carolinensis Gmelin. Syst. Nat. 1788. 1: 533
 DeKay. Zool. N. Y. 1844. pt 2, p. 340, fig. 249
 A. O. U. Check List. Ed. 2. 1895. No. 139

carolinensis, of Carolina

Description. *Male:* Head slightly crested, rich chestnut-brown, with black chin and a large patch of glossy green extending backward from the eye to the end of the crest where it meets its fellow, tawny black on its lower border and margined with a thin white line, more or less distinct; a

white crescent in front of wing; upper parts and flanks finely waved with black bars on a grayish white surface; under parts whitish, buffy on breast and clouded with gray and marked with round white spots; outer scapulars and tail coverts, and crissum black, a buffy patch on each side; wing coverts brownish gray; mirror bright green, velvety black on outer parts, bordered with ocherous buff on the front and with white on the rear; bill black; feet bluish gray; iris brown. *Female and young*: No crest; head and neck brown streaked with reddish brown; throat and foreneck grayish; upper parts varied with dark brown, tawny and grayish; whitish or grayish below, tinged with buffy on breast and spotted with dusky; wings similar to male.

Length 13-15 inches; extent 22-24; wing 7-7.6; tail 3; bill 1.5; tarsus 1.2.

Distribution and migration. This species is uncommon along the sea-coast of New York State, but is common along the Hudson river and the lakes and marshes of the interior of the State. It occurs almost entirely as a migrant, appearing soon after the Mallard and Pintail in March and leaving about the middle of April for its breeding grounds in the north. It returns from the 5th to the 20th of September and the greater number depart for the south from October 20th to November 10th, being abundant in the southwestern states and Mexico throughout the winter. Occasionally, however, it is found both on Long Island and in western New York in winter. Mr Ottomar Reinecke reports a case of its breeding on Strawberry island, Niagara river, and Foster Parker one case on the Montezuma marshes, while wing tipped birds have undoubtedly bred in other localities. The breeding range, according to Cooke, extends from New Brunswick to northern Illinois and Oregon and southward in the Rocky mountain region to New Mexico and north to the edge of the barren ground on Hudson bay and Kotzebue sound, the "main breeding grounds being in west central Canada from Manitoba to Athabasca."

The Green-wing is a noisier bird than the Blue-winged teal, the male uttering a short mellow whistle and the duck a quack after the fashion of a Black duck but small, high-pitched and more often repeated. It feeds chiefly at night on aquatic plants, snails, insects and crustaceans. Its nest is placed on the ground near the border of the stream or marsh. The eggs are from 8 to 12 of a pale greenish buff color, about 1.85 x 1.25 inches.

Querquedula discors (Linnaeus)*Blue-winged Teal*

Plate 14

Anas discors Linnaeus. Syst. Nat. Ed. 12. 1766. 1:205
DeKay. Zool. N. Y. 1844. pt 2, p. 339, fig. 246
A. O. U. Check List. Ed. 2. 1895. No. 140

querquedula, Lat., a kind of small duck; *dis'cors*, Lat., discordant

Description. *Adult male:* Head dark leaden gray with purplish reflections changing to blackish on the crown, chin, and base of bill; a large crescentric patch of white in front of eye; under parts cinnamon, rufous or purplish gray, thickly spotted with black and barred on the flanks; upper parts varied with dusky and yellowish brown, and turning to greenish brown on rump; a white spot on each side of base of tail; crissum black; bill dusky; feet dull yellow; iris brown; wing coverts grayish blue, the longer ones tipped with white; mirror green. *Female and young:* Wings similar to the males but less white on the forward border of the mirror, and colors less bright; head and neck grayish buff with streaks and spots of dusky buff, except on throat; crown quite dusky; belly whitish gray with obscure markings. *Drakes in eclipse plumage:* Resemble the ducks.

Length 14.5-16.5 inches; extent 26-31; wing 7-7.5; tail 3.5; bill 1.5; tarsus 1.2.

Field marks. The females and young of this species are frequently confused with Shoveler ducks when seen at a distance, but the peculiar bill of the latter species will serve to distinguish it from the teal. The blue wing coverts are characteristic of both species.

The Blue-winged teal is one of our commonest river ducks, being fairly well distributed throughout the State in all extensive marsh lands, but is more common in the lake region of western New York than on Long Island and is decidedly more abundant in the fall than in the spring in all parts of the State. It breeds rarely on Long Island, or did in former years, but more commonly in the marshes of Cayuga, Seneca, Wayne and Oswego counties as well as many other localities in the region of the lakes.

The Blue-winged teal, or Summer teal, as it is sometimes called, makes its earliest appearance with us from the 5th to the 10th of April and passes on to the north, or begins to breed, about the 10th of May. Like many

other ducks it is very secretive during the breeding season and I have known many instances in which broods were reared near farmhouses without their presence being suspected until the young were able to fly. Early in September this species is quite common on the ducking grounds of western New York and sportsmen often make large bags at the opening of the shooting season in the Montezuma marshes, and the ponds and bays along the shores of Lake Ontario. The flight of the teal is rapid, often equaling 2 miles per minute. Upon alighting they drop suddenly into the marsh like a snipe. Flocks of teal travel in a densely massed company and are sometimes seen wheeling about over their feeding grounds at dusk or daybreak like a flock of sandpipers. The Blue-wing's note is a whistling "peep" repeated five or six times but is seldom heard. The duck quacks less plainly and in hoarser voice than the Green-wing. They usually depart for the south by the 20th of October but are sometimes taken on Long Island as late as November 15th or even the 12th of December.

The nest of the teal is carefully concealed on the edges of the marsh and thickly lined with down. The eggs are from 7 to 12 in number, of a creamy buff color and measure 1.85 x 1.3 inches.

***Querquedula cyanoptera* (Vieillot)**

Cinnamon Teal

Anas cyanoptera Vieillot. Nouv. Dict. d'Hist. Nat. 1816. 5:104
A. O. U. Check List. Ed. 2. 1895. No. 141

cyanop'tera, Gr. κυανός, blue, and πτερόν, wing

Distinguishing marks. *Male:* Head, neck and under parts purplish chestnut, very dark on crown, chin and crissum, dusky on belly; foreback buffy brown varied with dark brown crescents and bars; rump greenish brown; wings similar to the preceding species. Size the same as the Blue-wing, or slightly longer, and the bill longer. *Female:* Very similar to female *discors*, but bill .25 inches longer and under parts tinged with chestnut, head and chin more speckled.

This is the neotropical representative of the Blue-winged teal, which is nearctic in distribution, but like many forms of South American origin



Cinnamon teal. *Querquedula cyanoptera* (Vieillot). New York specimen, James Flahive collection. $\frac{1}{2}$ nat. size

has invaded the southwestern United States and occasionally appears along the Gulf coast. This teal is common west of the Rocky mountains but is purely accidental in the Eastern States. A male of this species in fine plumage was killed on the shore of Seneca lake, Yates co., N. Y., about the middle of April 1886, and is now in the collection of Mr James Flahive, Penn Yan, N. Y.

Spatula clypeata (Linnaeus)

Shoveler

Plate 14

Anas clypeata Linnaeus. Syst. Nat. Ed. 10. 1758. 1:124

DeKay. Zool. N. Y. 1844. pt 2, p. 342, fig. 245

Spatula clypeata A. O. U. Check List. Ed. 2. 1895. No. 142

spa'tula, Lat., a broad piece, a spoon; *clypeā'ta*, Lat., *clypeum*, a shield; both names referring to the shape of the bill

Description. Bill long and greatly expanded at the end, with numerous fine and prominent lamellae. *Adult male:* Head and neck dark shiny green; lower neck, forebreast, scapulars and patch on each side of base of tail, white; back brownish black; inner secondaries, rump, upper and under tail coverts greenish black; belly reddish chestnut; wing coverts grayish blue; mirror rich green, bordered in front by white and on sides by black; bill blackish; feet orange red; iris yellow. *Female:* Plumage varied with brownish yellow and dusky, in pattern like the female Blue-winged teal; wings similar to drake's, but not so bright; feet orange; bill greenish brown on top sparsely speckled with dusky ochery orange at base and below.

Young and eclipse drakes: Found in all stages from that resembling the female to that of the high plumage figured by Mr Fuertes in plate 14.

Length 17-21 inches; extent 30-34; wing 9-10; tail 3; bill 2.65-2.75; tarsus 1.3-1.36.

The Shoveler, Spoon-bill, or Spoon-bill teal, is rare on Long Island, and in eastern New York, but fairly common as a migrant in western New York, arriving from the south from the 15th of March to the 5th of April and passing north from the 20th of April to the 12th of May. It has been taken on Long Island as early as February 12th and may pass the winter rarely in the southern part of the State. In the fall it arrives from the north the 15th of September to the 30th and leaves for the south October 15th to November 10th. In habits the Shoveler resembles the Pintail, preferring the marshes, shallows and flooded lands, feeding on the seeds of aquatic plants, snails and insects. Its cry, according to some, resembles the syllables *took, took*, or may be compared to the sound of a rattle turned by short jerks. This species is holarctic in range, but does not usually breed nearer to us than the St Clair flats and is most common in the interior of America along the Mississippi valley, nesting principally from Iowa, Colorado and northern California northward to central British Columbia and the Saskatchewan, and rarely to Ft Anderson and Kotzebue sound. Several years ago a Shoveler reared her brood on the Montezuma marshes, near the residence of Mr Foster Parker, who saw the old bird come from the nest and occasionally saw her with her brood until they were grown. This is the first definite breeding record for the State. The Shoveler is common in the West during migration and winters from Maryland and Missouri southward to Panama.

***Dafila acuta* (Linnaeus)**

Pintail

Plate 15

Anas acuta Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 126

DeKay. Zool. N. Y. 1844. pt 2, p. 341, fig. 244

Dafila acuta A. O. U. Check List. Ed. 2. 1895. No. 143

da'fila, no meaning known; *acū'ta*, Lat., sharp, acute, referring to the tail

Description. *Male:* Head and upper neck rich brown turning to black on the nape and glossed with green and reddish bronze on the sides of the

back head; front and sides of lower neck, breast and belly buffy white, a narrow line of the same color running up the sides of the neck between the bronzy brown of the sides of the head and the back of the nape; upper parts in general and flanks waved with grayish white and dusky; longer scapulars black, edged with buffy; upper and under tail coverts black, the upper broadly edged on the inner side with grayish or buffy white; a white patch on sides of rump; tail feathers gray, except the longer central pair which are black, glossed with darker green; wing coverts plain brownish gray; mirror bronzed green, bordered in front by rufous, behind by blackish and buffy white, inside by black and buffy; bill blackish edged with grayish blue; feet grayish blue; eyes brown. *Female and young*: Head and neck dingy white, often tinged with rusty, especially on the top and sides of the head, thickly speckled or streaked with dusky; upper parts brownish black, the feathers with grayish white or buffy or ochereous edgings and broken bars and loops; under parts dingy white or ochery white, mottled more or less with dusky; mirror shows the pattern of the males, but is often only sprinkled with gray as the rufous anterior margin is usually replaced with buffy white.

Length, *male*, 26-30 inches; *female*, 20-24; extent 33-36; wing 9.8-11; tail, *male*, 5-9; *female*, 3.8-5; bill 1.85-2.25; tarsus 1.55-1.68; middle toe and claw 2.25.

Distribution and migration. The Pintail is a fairly common migrant in the coastal region and more common in the marshes of western New York. As a spring migrant it ranks among the River ducks next to the Black duck in abundance, at least in Monroe and Ontario counties, being slightly more numerous than the Baldpate and like that species is apparently commoner in the spring than in the autumn. On Long Island it arrives from February 15th to March 6th and passes northward from March 24th to April 15th, returning from August 25th to September 20th and passing south from the 19th to the 30th of November. In western New York its arrival is from one to three weeks later, but it is sure to make its appearance as soon as the marshes are free from ice and is sometimes observed as late as the middle of May. In the fall it appears mostly in small flocks or as single individuals from the middle to the last of September, and is last seen from the 25th of October to the 15th of November. It has been found accidentally on Long Island in winter, but spends the cold season mostly from New Jersey, southern Illinois and British Columbia, as far south as

Mexico and Costa Rica. Its breeding grounds extend from North Dakota to the Arctic ocean.

Like the Mallard and Baldpate it comes into the shallow waters at dusk to feed on aquatic weeds, insects and crustaceans. Its note is seldom heard by day but while coming into the feeding grounds at night with the widgeons, black ducks and mallards, the hoarse muffled quack of the duck and the mellow whistle of the drake are heard mingled with whistling of the Widgeon and the loud calls of the Black duck. In the springtime the drakes often give utterance to low soft notes which seem to flow from deep down in the throat, especially while performing curious courting antics in the presence of the ducks.

***Aix sponsa* (Linnaeus)**

Wood Duck

Plate 14

Anas sponsa Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 128

DeKay. Zool. N. Y. 1844. pt 2, p. 338, fig. 247

Aix sponsa A. O. U. Check List. Ed. 2. 1895. No. 144

aix, Gr. *αἴξ*, some kind of waterfowl; *spon'sa*, Lat., a bride

Description. *Adult male:* Head with a beautiful flowing crest; upper parts resplendent with rich green and purple and bronze and velvety greenish black; breast purplish chestnut with chains of pointed white spots; a patch of dark purplish flowing feathers also on each side of the base of the tail; a narrow white line from the base of the bill passing over the eye and down the sides of the crest, another white line from behind eye passing down the lower edge of the crest; throat white, sending a spur upward on the side of the head and another on the side of the neck; a large white crescent edged with black in front of the wing; sides yellowish gray finely waved with black and white vermiculations, the longer flank feathers tipped with concentric arcs of black and white; speculum changing between purplish green and steel blue, bordered with white on the tips of the secondaries; primaries white frosted; lining of wings white barred with brownish gray; belly white; bill pinkish white, the base lake-red, the tip and ridge and lower mandible black; iris and eyelids red; feet yellowish or orange, with dusky webs. *Female:* Crest slight; bill largely dusky; feet dusky yellowish; head and neck gray, the chin and feathers about the base of bill and spot about eye running back to the ear region white; breast and sides yellowish brown, mottled or streaked with dusky; upper parts much duller than male and

rather brownish; belly white. *Young and males in eclipse:* Resemble the females but the white markings about the eye and base of the bill continue to distinguish the latter.

Length 18-20 inches; extent 27-30; wing 8.5-9.6; tail 4.3-4.75; bill 1.35-1.45; tarsus 1.4; middle toe and claw 2.

Distribution. The Wood duck or Summer duck was formerly a common summer resident throughout the State, and undoubtedly bred in every county. At the present time it is only fairly common in the most favorable localities, such as the marshes bordering on Seneca river and the eastern and southern shores of Lake Ontario. There are still sufficient birds that visit the State each season to propagate and replenish the depleted coverts of this beautiful species, wherever they are left undisturbed from the time of their arrival to the end of the breeding season. But constant persecution during the spring and summer had nearly brought them to the verge of extermination when the law prohibiting spring shooting was passed in 1902. Now in western New York, at least, the Wood duck is holding its own in spite of the tremendous slaughter which initiates the shooting each fall, and we believe the species will be preserved if the spring shooting is abolished in the eastern states, and the law strictly enforced throughout the close season.

Migration. The Wood duck arrives from the south March 15th to the first of April and remains in our State throughout the summer, but is more common and more generally distributed during the early part of April, and in the fall during September, than it is through the summer months, indicating that a considerable portion of the birds which are observed here are summer residents of more northern districts. The author found this bird common on the cranberry marshes of Lake Restoul and neighboring waters in Parry sound district, Canada, but rare on the Adirondack lakes, indicating as it seemed to him that this bird prefers a home which is undisturbed and can not survive the destruction which almost inevitably follows in the wake of thoughtless summer tourists and fishermen. In the fall it leaves us late in October or November and occasionally is taken as late as the middle of December.

The Wood duck prefers wooded swamps and flooded lands which border on lakes and streams, being rarely seen on the open waters of our large lakes and rivers. It is as much at home in the woods as a Grouse and finds its way among the trees with perfect ease when flying at full speed, and is frequently seen perched on trees and stumps. In the fall it frequently visits wooded hillsides in search of acorns of which it is very fond. Its food is principally the seeds of aquatic plants, especially wild rice, and insects which abound in swamps. The call of the drake is a mellow *peet*, *peet*; but when frightened it utters a harsher note which is usually written 'hoo eek, 'hoo eek. The note of the duck, when startled, is a sharp *cr-r-ē-ēk*, *cr-r-ē-ēk*, *cr-r-ē-ēk*, somewhat like the drake's alarm note. The nest is placed in a hollow tree or stump, its entrance often being so small that one would hardly believe that the bird could enter it. The eggs are from 8 to 16 in number of a yellowish white color and average 2.05 x 1.5 inches in size. Nests containing as many as 23 eggs are sometimes found, probably the laying of two ducks. The young climb to the entrance of the hole and tumble into the water if the nest is near its surface, if far from the water and high up, they are carried down by the female in her bill and led to the water. They are dark brown in color, a whitish bar along the back of the wing, a roundish spot on each side of the rump; a stripe over the eye and sides of the head yellowish buff with a band of blackish brown from the eye to the back of the head; under parts whitish, browner on the sides, the flanks with a whitish bar. Incubation continues for four weeks.

The Wood duck is easily domesticated and bred in captivity. There is no doubt that this species will some day be successfully propagated by the State and liberated as trout and oysters have been.

Subfamily **FULIGULINAE**

Sea and Bay Ducks

Tarsus scullate in front; hind toe lobed. In this group there is a tendency to shorter bill, deeper at the base, than in the River ducks. The feet are larger, and the legs shorter and placed farther back, and usually

less brilliant in color. Their plumage is very dense and less inclined to bright colors in the drakes, or mottling in the ducks; but a pied pattern in light and dark areas is more prevalent. The Sea ducks in general live more upon the open waters of the ocean, bays, lakes and rivers than do the *Anatinæ*. They are expert divers and often obtain their food in water upward of 75 to 150 feet in depth. Their diet consists normally of mollusks and other aquatic animals more than of vegetable substances, but the scaups and pochards often feed on water plants, and their flesh is well tasted, but that of most of the subfamily is coarse and unpalatable. The Sea ducks are highly gregarious in habit and often flock by hundreds or thousands over their favorite feeding grounds. The subfamily consists of 50 or more species, largely holarctic in range, but on the whole, more boreal and arctic than the River ducks.

***Netta rufina* (Pallas)**

Rufous-crested Duck

Anas rufina Pallas. It. 1773. 2: 713

Netta rufina A. O. U. Check List. Ed. 2. 1895. No. (145)

net'ta, Gr. *νήττα*, a duck; *rufi'na*, Lat., reddish

This Old World species has somewhat the appearance of the Red-head, but is fully crested and the bill and feet bright colored vermilion and orange-red, the female being duller colored and less crested. The only specimen from North America, a young male, was found in Fulton Market in February 1872, and was supposed to have been killed on Long Island [see Ridgway, U. S. Nat. Mus. Bul. 21. 1881. p. 85; Allen, N. O. C. Bul. 6:173].

***Marila americana* (Eyton)**

(*Aythya americana* on plate)

Redhead

Plate 16

Fuligula americana Eyton. Monogr. Anat. 1838. p. 155

Fuligula erythrocephala DeKay. Zool. N. Y. 1844. pt 2, p. 322

Aythya americana A. O. U. Check List. Ed. 2. 1895. No. 146

maril'a, derivation uncertain, perhaps Gr. *μαρίλη*, charcoal, from the black head and foreparts; *americā'na*, American

Description. *Male:* Head and upper neck brick-red; colors of body like the Canvasback but *darker*, not so white above nor so pure white

on belly, black on neck running up much higher; bill bright slaty blue with black tip; feet dull bluish; iris orange yellow. *Female and young:* Like female Canvasback in color but shape of head and bill like male. Size of the smaller dimensions given.

Length 20-22.5 inches; extent 34; wing 9-10; tail 3; tarsus 1.5; middle toe and claw 2.8; bill, length 1.9-2, height at base .9, width .87; weight 2-3 pounds.

Distribution and migration. Fifteen years ago this species was a common migrant on the Great Lakes, the central lakes and the Hudson river, as well as the waters of the Long Island coast. It is, however, somewhat irregular in manner of occurrence, some years being abundant on the Long Island coast as well as the inland waters, and in other seasons is uncommon or altogether absent. It frequently remains throughout the winter in considerable numbers on Long Island waters and less commonly on the Great Lakes. The principal breeding range of this species is from North Dakota and Manitoba northwestward through the Saskatchewan region, but it has bred as far east as the St Clair flats. Its chief winter range is from Chesapeake bay along the Atlantic and Gulf coasts to Texas. This is the American representative of the Pochard. It is a fine duck for the table when in good condition and after feeding on wild celery for some time it is not second even to the Canvasback. In the spring and less commonly in the fall, the male utters a peculiar *quä-quäq*, at the same time throwing his head far backward toward his tail. The female quacks like a hoarse or half choked Black duck.

Marila vallisneria (Wilson)

(*Aythya vallisneria* on plate)

Canvasback

Plate 16

Anas vallisneria Wilson. Am. Orn. 1814. 8: 103

Fuligula vallisneria DeKay. Zool. N. Y. 1844. pt 2, p. 321, fig. 256

Aythya vallisneria A. O. U. Check List. Ed. 2. 1895. No. 147

vallisneria, "wild celery," the favorite food of this duck

Description. *Male:* Head and neck reddish chestnut; the crown, foreface and chin strongly tinged with sooty; lower neck and foreparts of

body black; back, scapulars, wing coverts and under parts grayish white lightly marked with fine black vermiculations, excepting belly which is mostly plain; rump, tail coverts and tail blackish; wing feathers grayish, the secondaries pearly gray; bill blackish; feet grayish blue; iris red. *Female*: Upper parts grayish brown, showing traces of gray and black wavings; sides of head and neck tinged with rusty or reddish brown; throat and fore-neck mostly plain grayish. *Young* like female.

Length 20-24 inches; extent 34-36; wing 9; tail 3; tarsus 1.6-1.75; middle toe and claw 3; bill, length 2.25-2.5, depth at base 1.12; weight 2-3 pounds.

Remarks. There is no excuse for confusing the Canvasback with the Redhead as will be seen by reference to plate 16. The Canvasback drake is much lighter in color of the body, the neck is a darker red and the face smoky. He is also of longer build than the Redhead. The females and young of the two species are more similar in coloration, and the best mark is the profile of the bill and forehead, which rises gradually from the nostril to the crown of the head in the Canvasback, but shows a decided "break" at the feather-line in the Redhead.

Throughout the Hudson-Champlain valley and the coastal region of New York the Canvasback is a rare migrant and is not a common duck in any portion of the State. Occasionally, however, it has visited the central lakes, especially Canandaigua, Keuka, Cayuga, and Seneca, in large numbers. The winters of 1897-98 and the three following winters were remarkable for the large flocks of canvasbacks which appeared about the 1st of December on these waters and remained until early in March. On Canandaigua lake a flock of nearly 1000 canvasbacks passed a large part of the winter, and on Keuka lake flocks of 200 birds were frequently seen. In February 1899 many of these ducks were killed on Canandaigua lake about the air holes which remained open. Most of those killed were in poor flesh and some were picked up on the ice in a starving condition. During the past few years there have been fewer canvasbacks in winter, but they occur in limited numbers as regular migrants from the 1st to the 20th of April and from October 20th to November 15th. On Long Island Mr Dutcher's Notes show it to be a rare migrant from February 14th to April 6th and from October 12th to December 11th.

This is distinctively a nearctic species and is probably the most famous of all wild fowl for the excellence of its flesh. Its flavor is certainly delicious when it has fed for some time on the Vallisneria or wild celery, and is properly prepared for the table. Many epicures prefer it roasted for half an hour in a hot oven so that the body juices flow freely after the knife, some however like it stuffed and roasted for two hours till thoroughly cooked and browned. Almost any one of our river ducks under ordinary conditions is equal to the Canvasback when it has not fed on its favorite food, and I have usually found the redheads from western New York fully equal to the canvasbacks taken in the same region. The female Canvasback can quack almost as well as a Black duck, and also gives voice to a screaming *curr-row* when startled. The males, when together, frequently utter a peeping or growling note.

The Canvasback breeds from North Dakota and Minnesota northward to Great Slave lake and Fort Yukon, and winters from the Great Lake region and Chesapeake bay to Illinois, Texas and Mexico.

Marila marila (Linnaeus)

(*Aythya marila* on plate)

Scaup Duck

Plate 17

Anas marila Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 196

Fuligula marila DeKay. Zool. N. Y. 1844. pt 2, p. 323, fig. 252

Aythya marila nearctica. A. O. U. Check List. Ed. 2. 1895. No. 148

Description. *Male:* Head, neck and foreparts of body black, the head and upper neck glossed with greenish with only a slight suspicion of purplish; back, scapulars and wing coverts and lower belly waved with white and blackish; rump and tail coverts black; belly white, waved with dusky white in the region of the vent; the long flank feathers also lightly waved with dusky white; mirror white bordered with blackish; bill slaty blue with black nail; feet leaden bluish; iris yellow. *Female and young:* Feathers around base of bill white; upper parts ranging from umber brown on head and neck to fuscous brown on the back, the foreparts more or less margined with ochereous, and wavy bars of white usually showing slightly on the scapulars and other parts so marked in the male; speculum white; belly white; bill and feet somewhat duller than male's.

Length 18.5-20 inches; extent 32-35; wing 8.75-9; tail 2.8-3; tarsus 1.4-1.5; middle toe and claw 2.6; bill, culmen 1.65-2, width 1; female, length 17-17.5; wing 8-8.25; tarsus 1.36; bill 1.65.

The Scaup, Big bluebill, Broadbill, or Blackhead is an abundant transient visitant along the coast and on the larger inland waters. It is one of the common winter ducks on Long Island and is fairly common in winter on the lakes. It usually passes northward from the 15th of April to the 1st of May and returns from the 1st to the 20th of October. On the inland waters its numbers diminish considerably after the 20th of November. It is most abundant about the 1st of November and the 10th of April. The principal breeding range of this duck is from North Dakota and British Columbia north to Fort Churchill and Kotzebue sound. In eastern North America its winter home is chiefly from Massachusetts to North Carolina and from the Great Lakes to Texas. The Scaup is holarctic in range, although a few years ago the American bird was considered subspecifically distinct.

Ducks of this species utter a soft purring whistle when excited or calling to their mates, and rarely the discordant note described by Seebohm as resembling the word *scaup* screamed out in an exceptionally harsh, coarse voice. On two or three occasions I have heard a flock of scaups giving utterance to these notes and the effect was the loudest and most discordant chorus of bird notes to which I ever listened, coming as it did from scores of voices over the silent water.

Marila affinis (Eyton)

(*Aythya affinis* on plate)

Lesser Scaup Duck

Plate 17

Fuligula affinis Eyton. Monogr. Anat. 1838. p. 157

Fuligula minor DeKay. Zool. N. Y. 1844. pt 2, p. 324

Aythya affinis A. O. U. Check List. Ed. 2. 1895. No. 149

affi'nis, Lat., allied, related, i.e. to *M. marila*

Description. *Male:* Markings similar to the Greater scaup's, but the wavy bars on the flanks heavier and more numerous, the gloss of the head

purplish instead of greenish. *Female* can only be distinguished from *Marila* ♀ by measurement as follows:

Length, *male*, 16.5-17.5; extent 29-31; wing 8; tail 2.5; tarsus 1.5; middle toe and claw 2.4-2.5; bill, length 1.6-1.85, width .95. Length, *female*, 16-16.75; wing 7.5-7.9; tarsus 1.3; bill, length 1.55, width .9.

Distribution and migration. The Lesser scaup or Little bluebill is an abundant migrant on the waters of New York State. It is more generally distributed during migration than the other sea or bay ducks and is frequently found on the smaller ponds and streams. It is occasionally observed in winter, but is common only as a migrant, arriving from the 15th to the 30th of March, passing northward from the 20th of May to the 15th of June, and returning from October 1st to 15th, and passing south from the 15th of November to the 10th of December. The principal breeding range of this species is from North Dakota and Montana to the limit of timber in the regions of the Anderson and Mackenzie rivers. The center of its abundance in winter is along the coast of the south Atlantic States. I have no reliable record of the nesting of this bird in New York State although there have been numerous reports of probable breeding. These are due no doubt to the fact that many birds of this species often remain on our waters till late in June, or even throughout the summer, but all that I have examined were nonbreeding birds.

***Marila collaris* (Donovan)**

(*Aythya collaris* on plate)

Ring-necked Duck

Plate 17

Anas collaris Donovan. Br. Birds. 1809. p. 6, pl. 147

Fuligula rufitorques DeKay. Zool. N. Y. 1844. pt 2, p. 325, fig. 255

Aythya collaris A. O. U. Check List. Ed. 2. 1895. No. 150

collā'ris, Lat., collared

Description. *Adult male:* Head and upper neck black richly glossed with violet-green and purple; a *chestnut ring around the neck*; lower neck, forebreast and upper parts black, the scapulars slightly waved or dotted with grayish; lower breast and belly white, the lower belly waved with dusky; flanks tinged with bluish gray; crissum black; wings and tail fuscous or blackish brown; mirror bluish gray; *bill, base, edges and belt near tip pale*

bluish, tip black, the rest slaty; feet grayish blue; iris yellow. *Female and young*: Head, neck, breast, and upper parts light umber brown; *cheeks, chin, and eye ring white*; belly grayish white; wings like males.

Distribution and migration. This species, called also Ring-bill, Marsh bluebill, and Bastard broadbill, is a rare migrant in eastern New York and the coastal region, but in the marshes of central New York and the bays of Lake Ontario it sometimes appears in considerable numbers. In the spring of 1905, according to Foster Parker of Cayuga, it was common on the Seneca river during the month of April and remained till the middle of May. It also appears during the spring migration on the ponds and bays near Rochester, but is rarely noticed in the fall. It is apparently only a transient on our waters, the earliest spring records being February 1899, near Niagara Falls, by Edward Reinecke, and March 10, 1900, at Syracuse, by David Bruce. The latest fall date is December 10, 1897, at Brockport, by David Bruce. Mr Parker states that they arrive in the fall on the Cayuga marshes about the middle of October.

***Clangula clangula americana* Bonaparte**

American Golden-eye

Plate 18

Clangula americana Bonaparte. Comp. List. 1838. p. 58

Fuligula clangula DeKay. Zool. N. Y. 1844. pt 2, p. 330, fig. 257

Glaucionetta clangula americana A. O. U. Check List. Ed. 2. 1895. No. 151

clāng'ula, Lat., a little noise, referring to the wing motion

Description. *Male*: Head black glossed with green, the feathers elongated to form a puff encircling the head, but slightly longer on the crown and nape, a rounded white spot in front of the eye; lower neck all round, under parts, and large patch in the wing, patches on shoulders and scapulars white; back, most of scapulars, lesser wing coverts, and primaries black; tail ashy; iris golden yellow; feet yellowish orange with dusky shading; bill greenish dusky. *Female and young*: Head snuff-brown, less puffy than male's; upper parts mostly grayish brown; chest and sides partly grayish; wing dusky with a white patch.

Length 17-20 inches; extent 27-33; wing 8-9; bill, culmen 1.3; tip to end of frontal angle 1.65-1.8; gape 2; depth 95-1.05; width 70-82; tarsus 1.35-1.55; middle toe and claw 2.5; female smaller.

Field marks. The Golden-eye can be recognized at a considerable distance, whether flying or on the water, by its stocky build, fluffy head, and distinctly black and white coloration. Our other black and white ducks with which it is sometimes confused by inexperienced observers, are the sawbills and the Buffle-head; but the longer body and slender beak of the mergansers give them an entirely different appearance, while the Buffle-head is a much smaller bird, and the head though fluffy has a large white patch on the back. A peculiar whistling sound made by the Golden-eye when in flight is also an excellent characteristic, when combined with its shape and coloration. It is, however, impossible to distinguish this species from the Barrow golden-eye at a distance and the females and young of these two species can only be determined by careful comparison and measurement.

Distribution. The Golden-eye, Whistler, Brass-eye, Great-head, Garrot, and Whistle-wing, as this species is called, inhabits the open waters of every portion of New York State throughout the winter, arriving from the north about the first of November and going north again about the last of April, being one of the most characteristic winter ducks on our lakes and rivers. Mr H. C. Higgins of Cincinnati, N. Y., reports a young male taken in Cortland county, July 15, 1899. Mr Barnum, in his list of the birds of Onondaga county, mentions one case of its breeding there, but otherwise it is not known to nest in this State outside of the Adirondack region, where it has been recorded as a summer resident and as breeding by Dr Merriam, and also by Ralph and Bagg, who found young birds in Hamilton county during the month of June 1878 and in 1879.

The Whistler feeds mostly on shellfish and other aquatic animals which it secures by diving, sometimes in water upward of 35 feet in depth. It seems to delight in the coldest weather as long as its feeding grounds are not frozen over, and every duck hunter is familiar with the resonant whistle of its wings as it approaches his "blind" upon the frozen shore. This bird is not highly prized for food, but young whistlers when properly cooked are as good as bluebills. The note of the male Whistler is a single *peep*, accompanied by a kicking up of the feet, while the head is thrown far

back toward the tail. The duck, when startled or lost, calls out a sharp *cur-r-rew*.

Its nest is placed in a hollow tree or stump and the eggs are from 5 to 12 in number of a pale, glossy greenish, measuring about 2.35 by 1.7 inches. The downy young have the upper parts, as well as a band across the breast and the sides and thighs, dark sooty brown, marked with several white spots; chin, throat, and cheeks pure white; belly grayish white.

Clangula islandica (Gmelin)

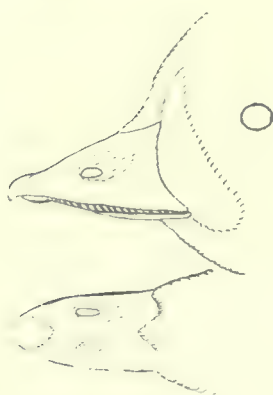
Barrow Golden-eye

Anas islandica Gmelin. Syst. Nat. 1788. 1:541

Glaucionetta islandica A. O. U. Check List. Ed. 2. 1895. No. 152

islan'dica, of island or Iceland

Distinctive marks. This species may be recognized by the *crescentic*, or wedge-shaped patch in front of the eye; by the color of the head, which



Bill of Barrow golden-eye.
½ nat. size



Bill of American golden-eye.
½ nat. size

is blue black, *glossed with purplish* instead of greenish black as in the preceding species; by the lengthening of the crest feathers on the crown and occiput, which is noticeably greater than in the preceding; and by the shape of the *bill* which is *relatively shorter and deeper* in the present species. The white wing patch is also divided by a black band and the white

crescent on the lores comes directly in contact with the base of the bill. Females are difficult to recognize, the general coloration of the two species being the same. *Islandica*, however, has the white wing patch crossed by a black band formed by the black tips of the greater wing coverts, and the bill is relatively shorter and higher at the base; the distance from the anterior margin of the nostril to the tip of the bill is .66 inches in *islandica* and

.75 inches in *americana*. The width of the nail in females of the former is .23-.3 inches and .2 in the latter. The white collar around the neck is narrower in the present species and the gray belt on the chest broader, and the brown of the head is more "hair-brown" and descends to the middle of the neck all around.

This arctic species is a rare winter visitor to the waters of New York State, except in the extreme northern part on the St Lawrence river, where Dr D. G. Elliot found it fairly common in 1865, and took nearly 40 specimens. There is also a male in the State Museum, Park Collection, no. 157, taken on Green Island,



Barrow golden-eye. *Clangula islandica* (Gmelin). Sodus Bay specimen, author's collection. About $\frac{1}{2}$ nat. size

Albany co., January 21, 1887; one specimen from Long Island is in the Collection of the Long Island Historical Society [see Dutcher, Auk, 10: 270]; and the only record known for western New York is an adult male taken on Sodus bay, November 1904, by Mr John Burke of Rochester, and presented to the author's collection.

***Charitonetta albeola* (Linnaeus)**

Buffle-headed Duck

Plate 10

Anas albeola Linnaeus. Syst. Nat. Ed. 10. 1758. 1:124
Fuligula albeola DeKay. Zool. N. Y. 1844. pt 2, p. 329, fig. 262
Charitonetta albeola A. O. U. Check List. Ed. 2. 1895. No. 153

charitonet'ta, Gr. χαριόω, to make graceful, or show grace, and νῆττα, duck; *albe'ola*, Lat., diminutive of *albus*, white

Description. *Male:* Head very puffy, beautifully iridescent with green, bronze and violet-purple, a large white patch extending back-

ward and upward from the eye, broadening and meeting its fellow on the occiput; lower neck all around, most of the scapulars, wing coverts and secondaries, and under parts in general white; upper parts mostly black fading to grayish white on upper tail coverts. *Female*: Head, neck and upper parts grayish brown; spot on the ear coverts and patch in the secondaries white; under parts white tinged with grayish on breast, sides and abdomen.

Length 14-15 inches; extent 23-25; wing 6.5-7; bill 1-1.15; tarsus 1.2-1.25; middle toe and claw 2.2-2.25. Female 2 inches shorter and other dimensions correspondingly less.

Field marks. The small size, fluffy head, large white head patch, and strikingly black and white plumage of the drakes attract attention at once. The male Hooded merganser has a large triangular white patch on the head which bears a general resemblance to this species, but the lower neck is not white all around, and the bill is slim instead of short and stubby as in the present species. The female Butterball is a very small duck of insignificant appearance, rather chunky in build, but may be distinguished from the female Ruddy duck and others by the small white spot on the side of the head and the white patch in the secondaries. Her head is also somewhat puffy and the bill short.

The Buffle-head, Butterball, Spirit duck, Diedapper, and Dipper, as this bird is called, is a fairly common transient visitant throughout the State, and in the southern portion is likewise found throughout the winter. It is common during spring and fall on the Hudson and most of the rivers, lakes and ponds of western New York, being more generally distributed on small bodies of water than any other of our bay ducks, especially in spring, when it is often seen on mill ponds, canals and creeks. There is a noticeable migratory movement early in April and the last birds have usually left the State for their northern breeding grounds by the 20th of May. They return again in October and those which go farther south have usually left us by the 20th of November.

This sprightly little duck is an expert diver, as several of its names would signify, and, like the grebes and loons, was formerly supposed to be capable of dodging a gunshot. When wounded and pursued it will propel itself long distances under water using both wings and feet, and, when it

comes to the surface to breathe, dodges and dives so suddenly that it is almost impossible to capture or shoot it. It is usually called Butterball or Butterbox by the sportsmen in allusion to the fact that its entire body is encased in a thick layer of fat. Its flesh is not held in high repute, but the young are tender and well flavored.

Harelda hyemalis (Linnaeus)

Old Squaw

Plate 20

Anas hyemalis Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 126
Fuligula glacialis DeKay. Zool. N. Y. 1844. pt 2, p. 328, fig. 263
Clangula hyemalis A. O. U. Check List. Ed. 2. 1895. No. 154

harel'da, according to Newton from *Havelle*, "common Islandic name for the bird, having reference to the trilling sound of its musical notes" [Dict. p. 406]; *hyemā'lis*, of winter

Description. *Male: Breeding plumage:* sides of the head pale gray, becoming white behind the eye; the rest of head, neck, breast and upper parts in general sooty brown or blackish; upper back and scapulars varied with reddish buff; outer tail feathers white; abdomen white; base and tip of bill black, the middle portion pinkish; iris yellow; feet leaden blue with dusky webs; middle tail feathers greatly elongated, tapering and dividing toward the tips. *Winter plumage:* Head, neck and foreback white with gray cheek patches and blackish patches on the sides of the head; a broad blackish zone across the forebreast; scapulars grayish white; the rest of upper parts blackish and under parts white. *Female in summer:* Head, neck and upper parts dusky brown, the white space around the eye and another on the side of the neck; scapulars light brown with blackish centers. *In winter:* Head, neck and under parts mostly white; crown and ear spot dusky; forebreast grayish; upper parts dusky brown; the scapulars varied with light brown and gray; middle tail feathers not elongated. *Young:* Similar to winter female, but the scapulars mostly like the back, and the head and neck more extensively grayish brown.

Length, male, 21-23 inches; female, 15-16; extent 30; wing 8-9; tail, male, 8-9; female, 3; bill 1.25; tarsus 1.2; middle toe and claw 2.45.

Field marks. This duck may be recognized in summer by its dark head and neck, with a large grayish white spot about the eye; in winter by the white or light colored head and neck with blackish patches on the sides of the head. The male also has a sooty brown breast, and is our only duck, besides the Pintail, with excessively elongated tail feathers.

Distribution. The Old squaw, Old wife, Long-tailed duck, Coween, or South-southerly, is a common winter duck on the waters of Long Island, on the Great Lakes, and the Hudson and St Lawrence rivers, wherever the water is open. It is sometimes positively abundant on these waters, especially in April and November, at which season it is also quite generally distributed on the smaller lakes and rivers, sharing with the Buffle-head and Lesser scaup the reputation of being the most widely distributed of the bay ducks on the small inland waters. It leaves us in May for its arctic breeding grounds and returns again to our coasts late in October or the first of November.

The Old squaw is one of the swiftest flyers and best divers among our ducks. It is also the most noisy and at times makes the lakes resound with its loud sonorous cries which have given it the name of "Hah-ha-way" among the Crees, according to Dr Richardson. It is likewise called South-southerly on the Chesapeake and other southern waters, and Cow-he-eeen, or Coween, by the gunners of western New York and other localities for the same reason. This duck seems to possess an inordinate amount of blood and its vitality is so great that it can scarcely be killed by the usual methods. Its flesh is dark and rank, caused by an uninterrupted diet of shellfish and other aquatic animals. While feeding in the Great Lakes this bird is frequently taken in the gill nets at a depth of 15 fathoms and sometimes at 27 fathoms (162 feet). At Dunkirk, N. Y., between five and seven thousand have been taken at one haul [*see* Bacon, Ornithology and Oology, 17: 45]. It is a noticeable fact that the old squaws are far less abundant than they were 30 years ago, and as their breeding grounds are in the arctic regions it is probable that this wholesale destruction on the lakes is the chief cause of their decrease.

Histrionicus histrionicus (Linnaeus)

Harlequin Duck

Plate 19

Anas histrionica Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 127

Fuligula histrionicus DeKay. Zool. N. Y. 1844. pt 2, p. 331, fig. 259, 260

Histrionicus histrionicus A. O. U. Check List. Ed. 2. 1895. No. 155

histrion'icus, pertaining to a player, tricked out in colors like a clown

Description. *Male in winter:* Plumage mostly leaden bluish turning to blackish about the edges of the peculiar white markings which are dis-

tributed as follows: broad patch in front of the eye and along the side of the crown, round spot on side of head, broad dash on side of neck, collar about base of neck which is broad in the middle and narrows or disappears on the front and back, crescent in front of wings on the sides of the breast, white spot on wing coverts and bar across the ends of greater coverts and secondaries, broad streaks on scapulars and tertials, and spot in front of tail on either side, all white; broad stripe along the sides of the head backward from above the eye, sides and flanks bright rufous or chestnut; speculum dark metallic violet or purplish; bill olivaceous; iris reddish; feet bluish gray with dusky webs. *Female*: Plumage in general dark brown, darkest on head and rump, more grayish below, and nearly white on the belly; grayish white spots in front of the eye, on the cheek and behind the ear. *Male in summer and young*: Similar to the female, the male showing all gradations from the plumage of the female to that of the adult winter male which is not acquired until the third year.

Length, male, 16-17.5 inches; female, 15-16; extent 23-27; wing 7-8; tail 3-4; tarsus 1.3; bill 1.05-1.12.

Distinguishing marks. Adult males of this species can not be confused with any other duck for an instant, but the female and young are obscure little ducks without definite markings except the two white spots on each side of the head, and the short bill, only one inch in length, higher than wide at the base.

The Harlequin is an arctic species of rare occurrence in this State during winter. It visits the Great Lakes occasionally and one specimen is said by Dr Bergtold to have been taken near Buffalo. Specimens from near Toronto are reported by Seton [Auk, 2:337] and by Fleming [Auk, 17:176]. The following New York records seem to be well authenticated.

Long Island. (No date). G. N. Lawrence Collection
 Gull island, L. I. Jan. 1865. (W. W. Reeves). Dutcher, Auk, 3: 434
 Bay s. of Freeport, L. I. Nov. 22, 1878. Badger, Auk, 6: 68
 Fire Island inlet, L. I. Jan. 1883. Dutcher, Auk, 3: 435
 Southold, L. I. Winter 1885. (G. E. Post). Dutcher, L. I. Notes
 Swinburne island, N. Y. bay. Winter 1887-88. (Smith). Dutcher, Auk, 6: 134
 Orient Point, L. I. Nov. 11, 1895. Worthington, Auk, 13: 78
 Montauk Point, L. I. Dec. 2, 1893. (Scott). Dutcher, L. I. Notes
 Bellport, L. I. Nov. 10, 1899. (Taken). W. Arthur Babson
 Niagara River, Jan. 9, 1902. ♂ juvenal. (A. Thomas, H. Grieb). James Savage

In relation to the Gull island specimen, we quote from Mr Dutcher's Long Island Notes, "I shot it when I was keeper of the light in 1865, during the month of January. There were four of them living around the island

sometime before I got a chance to kill one of them. It is a male bird which I have. I crippled a female at the same time, but did not get it as the tide was running so swiftly. They were the first of the kind that I ever saw and have seen only two since. They are a diving duck and like to play around the rocks. I watched them several times while they were there and they played like small boys playing tag. I have gunned over 40 years here and as far south as Savannah, but never saw them anywhere but on the island and so think they are a rare bird." [W. W. Reeves]

Camptorhynchus labradorius (Gmelin)

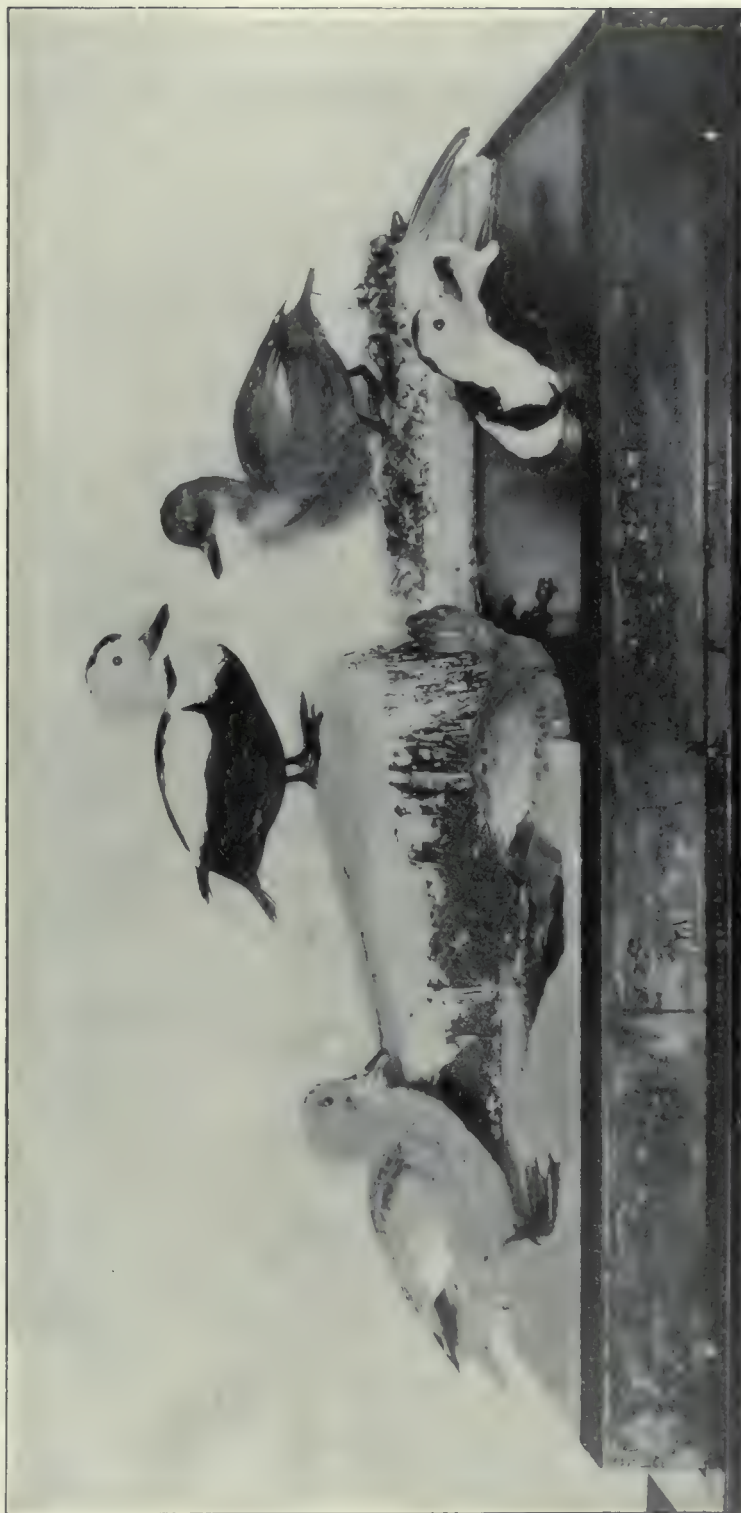
Labrador Duck

Anas labradoria Gmelin. Syst. Nat. 1788. 1: 537
Fuligula labradoria DeKay. Zool. N. Y. 1844. pt 2, p. 326, fig. 258
Camptolaimus labradorius A. O. U. Check List. Ed. 2. 1895. No. 156
camptorhynchus, Gr. *καμπτός*, flexible, and *ρύγχος*, beak; *labrado'rius*,
 of Labrador

Description. "*Adult male:* Head, neck, chest, scapulars, and wings (except quills) white; rest of plumage, including stripe on top of head and broad ring round neck, deep black; stiffened feathers of cheeks brownish white. *Adult female:* Uniform brownish gray, the wings more plumbeous; tertials silvery edged with blackish; secondaries white; primaries dusky. *Young male:* Similar to the adult female, but chin and throat white, and white of chest of adult male strongly indicated; greater wing coverts white."

"Length about 18-23.75 inches; wing 8.5-8.9; culmen 1.6-1.7; tarsus 1.5-1.6; middle toe 2.25-2.4." [Ridgway]

This species, which was also known as the Pied duck or Skunk duck on account of the black and white coloration of the male, formerly occurred, according to Audubon, "in greater or less numbers along the coast of New Jersey and Long Island." The late Mr George N. Lawrence said: "I recollect that about 40 or more years ago it was not unusual to see them in Fulton Market, and without doubt killed on Long Island. At one time I remember seeing six fine males which hung in the market till spoiled for want of a purchaser; they were not considered desirable for the table and collectors had a sufficient number." [Dutcher, Auk. 1891. 8:201-16]. Mr Wallace writing in the *Nuttall Ornithological Club Bulletin*, volume 3, page 79, says few specimens have been obtained on Long Island since 1868, and the last record known is 1874, and that four or five young males or



Labrador duck. *Camptorhynchus labradorius* (Gmelin). From group in American Museum of Natural History

females were obtained in the preceding 15 years. Mr Dutcher says in the *Auk*, volume 10, page 270, that several specimens of this species were shipped to England and Germany between 1843 and 1850; and in the *Auk*, volume 11, page 176, that 30 specimens are found in North American collections. Of these 7 are in the American Museum of Natural History, N. Y., ♂ in the collection of the Long Historical Society, ♂ in the Brooklyn Institute of Arts and Sciences, ♂ in the Vassar College Museum, ♂ and ♀ in the State Museum at Albany.

We find references to the occurrence of this species at Laprairie, Canada, in 1862 [see Can. Nat. & Geol. 8:426], and at Elmira, N. Y., December 12, 1878 [see Gregg, Am. Nat. 13:128]; it is likely, however, that these reports were made on insufficient evidence, as no *bona fide* specimens are known from the interior. The Labrador duck was preeminently a maritime species frequenting the bars and sand shoals along the coast and feeding almost entirely on mollusks and other shellfish. Gunners for this reason often called it the Sand-shoal duck. Its breeding grounds are supposed to have been on the coast of Labrador and the shores of Baffin's bay, but as far as we know no specimens of eggs or ducklings occur in museums.

Without doubt this species is now extinct, the last specimens according to Dutcher [*Auk*, 11: 4-12] having been taken on the shore of Grand Manan in 1871 and on Long Island in 1875. It is probable that the cause of its extermination will remain a mystery; but its restricted range, the comparative ease of taking it, and the possibility of a calamity to its breeding grounds, may be regarded in this connection.

***Somateria dresseri* Sharpe**

American Eider

Plate 19

Somateria dresseri Sharpe. Ann. Mag. Nat. Hist. July 1871. p. 51
Fuligula mollissima DeKay. Zool. N. Y. 1844. pt 2, p. 332, fig. 250
Somateria dresseri A. O. U Check List. Ed. 2. 1895. No. 160

somate'ria, Gr. σῶμα, σώματος, body, and ἔριον, down; *dres'seri*, of H. E.

Dresser

Description. *Adult male:* Feathered angle on the forehead not extending forward as far as nostrils, feathers on sides of bill extending as

far as nostril, the bare base of the bill broad on top and extending backward on each side between the two feathered areas aforesaid in a broad arm with rounded ends (the Greenland eider has the arms of this V-shaped base of the culmen narrow and more pointed at the ends); top of head black, bordered below by pale green; rest of head white, tinged with greenish on its sides and back; throat, neck, back, scapulars and lesser wing coverts white; breast tinged with vinaceous; middle rump, upper and under tail coverts, lower breast, and belly black. *Adult female*: Plumage barred with black and rusty or ocherous, the head and neck streaked with the same. *Young*: Like the female, but more buffy.

Length 22-24 inches; wing 11.2-11.5; bill from posterior end of nostril, male, 1.35-1.45, female, 1.32; angle from extremity of loreal feathering, male, 1.75-2, female 1.87; its width at middle, male .45-.5, female .22; depth of upper mandible at the frontal apex, male, 1-1.25, female .78.

Distinguishing marks. This eider is best determined by the angle and feathering on the sides of the bill; and it is practically impossible for the amateur to recognize the young and females in any other way. By referring to the description and measurements of the bill given above and under King eider he will have no difficulty when the specimen is in hand, but they can not be recognized at any great distance when alive.

Although the American eider nests as far south as the coast of Maine it is a rare visitor on the waters of New York State. Its general appearance and habits resemble those of the King eider. The following records are undoubtedly authentic:

Branchport, N. Y. Feb. 1873. Auburn List

Center Moriches, L. I. Nov. 8, 1886. ♀ juvenal. L. S. Foster, Forest and Stream, 27: 323

Smith's Point, L. I. 1880. (Helme). Dutcher

Moriches, L. I. Dec. 16, 1891. (Seaman). Dutcher

Montauk Point, L. I. Mar. 25, 1894. ♀. (Mulford). Dutcher

Ossining, N. Y. Dec. 14, 1894. Dr A. K. Fisher

Buffalo, N. Y. Rare, wv. Linden, Bergtold List

Brockport, N. Y. wv. Rare. David Bruce

Somateria spectabilis (Linnaeus)*King Eider*

Plate 19

Anas spectabilis Linnaeus, Syst. Nat. Ed. 10. 1758. 1: 123
Fuligula spectabilis DeKay, Zool. N. Y. 1844. pt 2, p. 334, fig. 251
Somateria spectabilis A. O. U. Check List. Ed. 2. 1895. No. 162

specta'bilis, Lat., conspicuous

Description. The feathering on the forehead reaching as far forward as the posterior end of the nostril, feathers on the lores reaching only halfway to the nostril. *Adult male:* Bare space on side of upper mandible enlarged into a broad rounded lobe; top and back of head bluish gray; V-shaped mark on the throat, feathers around the base of the upper mandible and small eye spot black; cheeks greenish; neck, upper back, sides of rump and wing coverts white; upper breast creamy buff; rest of plumage black. *Female and young:* Like the American eider in color, but the feathering about the sides and top of the bill like the male.

Length 20-25 inches; wing 10.5-11.3; tarsus 1.8-1.85; bill 1.25-1.32, female 2 inches.

The King eider is a winter visitor on the coast of Long Island as well as the inland lakes of New York. It occurs much more frequently than the American eider and may be considered a regular winter visitor, sometimes being decidedly common, as in the winter of 1879 on Lake Erie, and the winter of 1886-87 off the eastern end of Long Island. Its breeding range extends from the Gulf of St Lawrence northward. It is a deep water duck and feeds mostly on mussels which it is able to procure, it is said, in water upward of 150 feet in depth, and occasionally is caught like the Old squaw in the deep water gill nets of the lake fishermen. In the breeding season the males go into the "eclipse" plumage and flock together on the open sea. The female lines her nest with down as do the other species of eider, thus furnishing the famous eider down of commerce, which is gathered by the natives of Iceland, Greenland and Norway. This is taken chiefly from the Greenland and European eiders, each nest yielding about 5 ounces of down in a season.

The following are some of the records for the interior.

Onondaga lake. Jan. 20, 1877. ♂ adult. Auburn List, p. 39
Buffalo, N. Y. Nov. 26, 1879. (18 shot). Allen, N. O. C. Bul., 5: 62

Cayuga lake. Taken years ago. ♂ adult. L. A. Fuertes
 Oneida lake. Several taken. Ralph & Bagg
 Great Lakes. 1889. Taken in deep water gill nets. Sterling, Forest and Stream, 34:
 350; *see also* Linnett, Auk, 7: 88
 Irondequoit bay. Feb. 1890. David Bruce
 Niagara river. Dec. about 1891. James Savage
 Lake Champlain. Dec. 2, 1894. (C. L. Kirke). State Museum Collection
 Lake Ontario, Monroe co. Dec. 22, 1895. ♀. George F. Guelf
 Erie, Pa. Nov. 13, 1894, (5 shot); Dec. 30, 1900, (2). (Bacon). Todd, Birds of Erie, p. 526
 Cayuga, Nov. 3, 1908. (20 seen, 3 shot). E. H. Eaton

Long Island dates taken from over 30 records in Dutcher's Long Island Notes range from November 1 to April 27. They occur every winter and are commonest at the eastern end of the island.

***Oidemia americana* Swainson**

American Scoter

Plate 20

Oidemia americana Swainson in Swainson & Richardson. Fauna Bor. Am., 1831. 2: 450

Fuligula americana DeKay. Zool. N. Y. 1844. pt 2, p. 336, fig. 242

Oidemia americana A. O. U. Check List. Ed. 2. 1895. No. 163

oidemia, Gr. *οἰδημα*, Lat. *oedema*, swelling, referring to the knob on the bill

Description. *Adult male:* Bill much swollen on top at the base, this whole knob and the basal half of the upper mandible yellow, or yellowish orange, the rest including the edges black; whole plumage black. *Adult female:* Dark grayish brown, under parts lighter; side and under parts of head light grayish, contrasted with the dark brown of the top and back of the head; bill blackish. *Young:* Similar to female but lighter beneath, the belly obscurely barred with grayish brown.

Length 17-22 inches; wing 8.75-9.5; tarsus 1.7; bill, culmen 1.65-1.8, depth of upper mandible at base, male .85-.95, female .7; tarsus 1.75; middle toe and claw 3.25.

Distinctive marks. Among our other scoters this species may be recognized by the uniform black color of the male; the frontal feathers do not encroach upon the bill as in the other species; tail 16-feathered; the females and young by the uniform light grayish brown or dingy whitish color of the cheeks, whereas the female Surf scoter has two whitish patches on the sides of the head and is a larger bird, but the females and young of these two species can not be recognized at a distance.

The American scoter which is known on Long Island as the Black coot, Whistling coot, or Yellow-billed coot is a common winter visitor on the coast, arriving from the north about the 15th of October, but sometimes as early as the 21st of September, and returning from the 11th to the 25th of April. At times it is abundant on the Hudson, according to Dr. Mearns, and is a common fall migrant on Lakes Erie, Ontario and Champlain. On the smaller rivers and lakes, however, it is little known, and the males in adult plumage are scarcely ever procured except along the coast. Mr James Savage refers to the great flights on Lake Erie as follows: "This species and the next are abundant on Lake Erie in October. A few sometimes arrive before September 1st, but the first big flight usually takes place the last week in September. They occur in large flocks, decoy easily and are killed in great numbers even though not desirable for the table. At the beginning of the flight last fall (1899) one gunner whom I know, killed 109 in one forenoon and quit because he had no more ammunition. The big flight of scoters this fall (1900) occurred on October 9th. On that day two men in a boat came in at the foot of Michigan street with 156. On the same day two brothers, friends of mine, shot 175 on Lake Erie near Angola, Erie co."

This scoter has the same habits as the following species and like them breeds in Labrador and the interior of arctic America, wintering on the Great Lakes and along the Atlantic coast from the Gulf of St Lawrence to South Carolina and rarely farther.

***Oidemia deglandi* Bonaparte**

White-winged Scoter

Plate 20

Oidemia deglandi Bonaparte. Rev. Crit. de l'Orn. Europ. de Dr Degl. 1850. p. 108.

Fuligula fusca DeKay. Zool. N. Y. 1844. pt 2, p. 337

Oidemia deglandi A. O. U. Check List. Ed. 2. 1895. No. 165

deglan'di, to C. G. Degland

Description. Feathering advancing about as far on the forehead as on the lores; sides of upper mandible sunken at the base; lores separated from

the nostril by narrow space, knob on upper mandible feathered; bill wonderfully varied with orange, red, black and white; plumage black, speculum and spot behind the eye white. *Female*: Sooty brown or dusky grayish brown, lighter below; speculum white. *Winter and immature*: Similar to female, sometimes grayish white patch at base of bill and in the ear region.

Length 20-23 inches; wing 10.7-11.5; bill, culmen 1.4-1.7; depth of upper mandible at base 1.1-1.3; tarsus 1.75-2.08.

Field marks. This bird may be recognized at long distance on account of the black plumage with white speculum.

The White-winged scoter or White-winged coot is the most abundant of our three scoters and the most generally distributed throughout the State, occurring on inland waters both as a spring and fall migrant, and a winter visitor on the Great Lakes; on the coast it is an abundant winter visitant. It arrives on our waters from the 15th of September to the 1st of October and leaves us again on its northward journey from the 1st to the 15th of May. It is the only scoter which is common on the interior lakes in the spring and is often seen in large flocks during late May when the males are in perfect plumage and their bills brilliantly colored. During the fall it is chiefly young birds which are taken on the lakes. This is the nearctic or North American representative of the Velvet duck, breeding from Dakota and southern Labrador to the Arctic coast, and wintering from the Gulf of St Lawrence and the Great Lakes to South Carolina, chiefly along the coast.

These scoters prefer to gather in large flocks at sea or on the open waters of bays, lakes and rivers, especially over the beds of mollusks which abound in the waters of Long Island and the Great Lakes. On the coast they feed principally on clams and scallops, but in the interior fresh-water mussels are equally sought after. They are more nocturnal or crepuscular in habit than the Scaup or Redhead.

Oidemia perspicillata (Linnaeus)*Surf Scoter*

Plate 20

Anas perspicillata Linnaeus. Syst. Nat. Ed. 10. 1758. 1:125
Fuligula perspicillata DeKay. Zool. N. Y. 1844. pt 2, p. 335, fig. 253, 254
Oidemia perspicillata A. O. U. Check List. Ed. 2. 1895. No. 166

per'spicillā'ta, Lat., very conspicuous

Description. *Adult male:* Glossy black, duller below; a triangular white patch on forehead, and another on the nape; bill white, pink, orange and carmine red, with a large black patch on the side of upper mandible near the base; feet orange red with dusky webs; iris pearly white. *Female and young:* Sooty brown above; silvery gray below; sides of head with more or less grayish white, in the young males at least gathered into cheek and ear patches; bill blackish; feet dusky tinged with reddish; size of the smallest dimensions given.

Length 17-21 inches; extent 31-36; wing 9-10; tarsus 1.65-1.7; middle toe and claw 3.25; bill along gape 2.25-2.5.

Remarks. The male of this species has the tumid enlargement of the bill on the sides as well as above the nostrils and the feathers of the loreal region do not encroach upon the sides of the bill as in the White-winged scoter. The latter character will help distinguish females and young of the Surf duck, but the absence of the white patch in the wing makes just as certain a mark, and one which can be recognized at a long distance.

Distribution and migration. This species is an abundant transient visitant along the seacoast and common along the Hudson river and Lake Champlain. It is less commonly met with on the Great Lakes, except in the fall when it is common for a few days in October. Immature specimens are occasionally taken on the central lakes, but is much less common than the White-winged scoter. It is also common throughout the winter off the Long Island coast, but rare as a winter visitant on the inland waters. It arrives from the north from the 1st to the 15th of October and disappears from the smaller inland waters by the middle of November. In the spring it leaves the Long Island waters in May, no definite dates being obtainable. This species breeds from Newfoundland and southern Labrador to Great Slave lake and the Arctic coast and is found in winter principally along the coast from the Bay of Fundy to Florida.

Erismatura jamaicensis (Gmelin)*Ruddy Duck*

Plate 10

Anas jamaicensis Gmelin. Syst. Nat. 1788. Ed. 1. 2: 519
Fuligula rubida DeKay. Zool. N. Y. 1844. pt 2, p. 327, fig. 261
Erismatura rubida A. O. U. Check List. Ed. 2. 1895. No. 167

erismatū'ra, Gr. ἔρισμα, prop, and οὐρά, tail; *jamaicen'sis* of Jamaica

Description. *Male in full plumage:* Neck, upper parts and sides rich brownish red; crown and nape black; chin and sides of head nearly up to the eye line white; under parts silky white "watered" with dusky white; wings and tail blackish brown; bill and eyelids grayish blue; feet bluish gray with dusky webs; eyes reddish. *Female, young and males in obscure plumage:* Brown above with irregular and spotted bars of ochreous or buffy, giving the feathers a peppered appearance; crown and irregular band on side of head dark; cheeks, throat and under parts of a grayish white appearance, the winter males with plane white cheeks, the bases of the feathers on the breast and belly being gray and the tips silvery white; bill dusky.

Length 14.5-17 inches; extent 20-24; wing 5.5-6; tarsus 1.25; middle toe and claw 2.6; bill 1.5, width .9-.95.

Distinctive marks. The peculiar round, chunky body, small head and thick short neck of this bird make it easily recognized by its shape. It has a remarkably broad flat bill also, with an overhanging and decurved nail. The tail is composed of 18 stiffened feathers, often spiny-pointed by the wearing off of the terminal barbs, and with no observable coverts.

Distribution and migration. The Ruddy duck is a fairly common migrant on our inland lakes and rivers and in some seasons is common along the coast, but seems to be more irregular in its occurrence on Long Island waters than in the interior. It is a hardy species and is occasionally taken in midwinter, especially on the coast. Foster Parker of Cayuga has furnished one instance of its breeding on the marshes of Seneca river. On the first day of September several years ago, he found an old duck of this species with a brood of young which were so poorly fledged that they were unable to fly. I, myself, have seen this species on Buck pond, near Rochester, during the months of May and June under circumstances which led me to believe that they were nesting in that locality, but I was unable to secure

definite proof. This species appears in the spring from the 10th to the 20th of March and it is commonest about the 10th of April and usually passes northward before the 1st of May. It returns from the north from September 25th to October 15th and passes southward from November 1st to 20th. This species is found breeding in such widely separated localities as Ungava, Great Slave lake, Lower California, Guatemala, Porto Rico and Cape Cod. Its principal summer home, however, is from Dakota to the Saskatchewan.

This curious little duck is so unlike our other sea ducks, both in the structure of its bill, its general build, its spiny tail and its habits that it has been given a great number of local names, according to Trumbull and Coues, reaching a total of 60 and upward. Many systematists likewise would make it the type of a subfamily (Erismaturinae). Its colloquial names tell its natural history from the gunner's standpoint: Dumpling duck, Butter duck, Deaf duck, Sleepy-head, Diving teal, Widgeon-coot, Booby-coot, Bumblebee-coot, Bristle-tail, Spoon-billed butterball, Broad-billed dipper, Hickory-head, Shot-pouch, Chunk duck (western New York), Paddy-whack, and 40 others.

***Chen hyperborea hyperborea* (Pallas)**

Lesser Snow Goose

Anser hyperboreus Pallas. Spicil. Zool. 1769. 6: 25

Chen hyperborea A. O. U. Check List. Ed. 2. 1895. No. 169

chen, Gr. χήν, goose; *hyperborea*, Lat., *hyperborean*, far northern

Distinguishing marks. Differs from the Greater snow goose only in size; from the Blue goose as noted under that species.

Length 24-26 inches; wing 14.5-17; tail 5.5; tarsus 2.75-3.3; bill 2-2.15.

According to Professor Cooke, [Biol. Sur. Bul. 26, p. 65-67], this species is confined principally to the region west of the Mississippi river during migration, winters most abundantly from Louisiana to Texas and Mexico, and probably breeds on the islands of the Arctic ocean, "immediately to the north of Banks Land."

In Mr Dutcher's Long Island collection there are two specimens of Snow geese, no. 107 and 1200, both immature, which fall within the dimen-

sions given by authorities for the Lesser snow goose. One was taken on Shinnecock bay, October 8th, 1881 [see Dutcher, Auk, 1:34], the other on Montauk Point, October 29th, 1888.

***Chen hyperborea nivalis* (Forster)**

Greater Snow Goose

Plate 21

Anas nivalis Forster. Philos. Trans. 1772. 62: 413

Anser hyperboreus DeKay. Zool. N. Y. 1844. pt 2, p. 350, fig. 238

Chen hyperborea nivalis A. O. U. Check List. Ed. 2. 1895. No. 169a

nivā'lis, Lat., like snow, snowy

Description. *Adult:* Plumage pure white, the wing tips black, the head often washed with rusty; bill pinkish or carmine red, the nail white and the "grinning" opening black; feet pale lake-red; iris dark brown. *Young:* Head, neck and upper parts light gray, the feathers margined with lighter; rump, tail, and under parts whitish; bill and feet much darker than in the adult.

Length 27-31 inches; extent 58-63; wing 17-17.15; tail 6.5; bill 2.3-2.65; tarsus 3-3.5; middle toe and claw 3-3.5; weight 5-6.5 pounds.

The Greater snow goose is supposed to breed mostly on Victoria Land in the Arctic ocean. It "is enormously abundant on both the eastern and western shores of Hudson bay during spring migration" and winters chiefly in the lower Mississippi valley from southern Illinois to the gulf, but is found mostly east of the Mississippi river, while the Lesser snow goose is found to the westward. The Greater snow goose is also found on the Atlantic coast from North Carolina to Cuba and occasionally winters as far north as Cape Cod, and it is assumed in the present report that all records of Snow geese in New York State where the specimens were not procured refer to this species. The following are the definite records we have of this species:

Ithaca, N. Y., March 1876. (2 young). Forest and Stream, 7: 283

Lake George, N. Y. Nov. 19, 1881. (Flock). Merriam, N. O. C. Bul. 7: 128

Ossining, N. Y. April 8, 1882. (200-300). Fisher, N. O. C. Bul. 7: 251

Moriches, L. I. Sept. 28, 1886. Adult. (Lucas & Buck). Dutcher, L. I. Notes

Lake Champlain, N. Y. Few years ago flock seen by E. G. White, Ottawa, 185 Wurtenburg st. (Some were shot.)

- Cedar Island, Great South bay, L. I. Oct. 9, 1886. 3 juvenal. (Wilson). Dutcher,
L. I. Notes
Amityville, L. I. Nov. 15, 1886. (Flock 20 flying southwest, Chichester). Dutcher
Atlanticville, L. I. Dec. 3, 1886. (Flock 30). (Jackson). Dutcher
Montauk, L. I. Dec. 1886. Dutcher
Cold Spring Harbor, L. I. Dec. 7, 1886. (2 seen). Forest and Stream, Dec. 9, 1886
Owego, N. Y. Fall of 1888. (J. A. Allen). J. A. Loring
Shelter Island, L. I. Apr. 3, 1889. ♂. Dutcher
Gardiners island, L. I. Oct. 1889. (2). (Lucas). Dutcher
Atlanticville, L. I. 1890. (2 killed, Knoess). Dutcher
Point Lookout Life Saving Station, L. I. Nov. 24, 1901. (Several flocks). Braislin,
p. 50
Rockaway Beach, L. I. Jan. 30, 1902. (1). Braislin, p. 50
Nyack, N. Y. Nov. 18, 1903. ♀ Immature. Braislin, Auk, 21: 288

Several other records more or less indefinite occur in the *Forest and Stream* and other publications. It is evident, however, that the Snow goose is an uncommon bird in this State, but, unlike most birds which breed in the interior of British America or on the Arctic coast, and follow the Mississippi valley during migrations, it appears to be more common on the Atlantic coast and along the Hudson-Champlain valley than in western New York.

***Chen caerulescens* (Linnaeus)**

Blue Goose

Plate 21

Anas caerulescens Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 124
Chen caerulescens A. O. U. Check List. Ed. 2. 1895. No. 169.1

caerulescens, Lat., bluish

Description. Head and upper neck white; lower neck, back, scapulars, breast and flanks dusky gray, the feathers tipped with grayish white, or brownish, giving a somewhat scaly appearance; the dark color fades to whitish on the belly and under tail coverts; rump, and greater and lesser wing coverts bluish gray; tertials and greater coverts black along their centers, growing brownish toward their edges and quite sharply margined with whitish; wing feathers dusky toward the tips, their shafts white except near the tips; tail feathers dusky, margined and tipped with whitish; bill and feet flesh color, the "grinning recess" of the bill black; iris brown. Like other waterfowl which dabble in marshy waters charged with iron, there

is often a rusty tinge on the head and belly. Young birds have the head and neck dark grayish brown and the bill and feet dusky.

Length 25-30 inches; wing 15-17; bill 2.1-2.28, depth of bill at base 1.37; tarsus 3-3.25; middle toe and nail 2.77; outer toe 2.62; inner toe 2.12; rear toe .67.

Blue snow goose, Blue-winged goose, Blue wavy, White-headed blue brant, or White-headed goose, as this bird is called by gunners in different localities, is one of the rarest waterfowl which visit the waters of New York State. Many ornithologists have considered it merely the young of the Snow goose, but at the present time the consensus of opinion seems to be that it is a perfectly good species. The amateur may distinguish it by the white head and bluish wings and rump, since the young of the Snow goose is never known to have a white head when in dark plumage. Its habits and notes resemble those of the Snow goose and its breeding range is supposed to be somewhere in the Hudson bay region.

Several specimens of the Blue goose taken within the State have been preserved in museums as follows:

Shinnecock bay, L. I. L. I. Hist. Soc. Col. Dutcher, Auk, 10: 270
 Amityville, L. I. Nov. 22, 1893. ♀. (Chichester). Dutcher Collection
 Cayuga, N. Y. Apr. 1, 1896. ♂ ♀. Foster Parker. Collection of State Museum
 Schenectady, N. Y. Mar. 23, 1898. Collection of State Museum
 Amagansett, L. I. Mar. 21, 1887. (Edwards). Collection of Lucas & Buck, Sag Harbor.
 Dutcher
 Miller's Place, L. I. Apr. 28, 1883. A flock of 10 seen. (Arthur H. Helme). Dutcher

Anser albifrons gambeli (Hartlaub)

American White-fronted Goose

Plate 21

Anser gambeli Hartlaub. Rev. Mag. Zool. 1852. 7
Anser albifrons DeKay. Zool. N. Y. 1844. pt 2, p. 349, fig. 236
Anser albifrons gambeli A. O. U. Check List. Ed. 2. 1895. No. 171a

albifrons, Lat., with white forehead; *gambeli*, of William Gambel

Description. *Adult:* Forehead white, bordered behind with black; upper parts brownish ash; breast and belly brownish white broadly banded

or blotched with black; sides of rump, upper and under tail coverts and crissum white; bill pink, with white nail; feet chrome yellow, the claws black; iris dark brown. *Young*: Darker and browner; forehead dark; no black blotches on belly.

Length 27-30 inches; extent 60; wing 16-17; tail 5.5; tarsus 2.75-3; bill 2-2.15.

This bird has always been very rare in our State. Giraud mentions one specimen which was shot at Babylon, L. I. Professor Linden speaks of it having occurred on Chautauqua lake [see Buf. Soc. Nat. Sci. Bul. 4:34]. Dutcher [Auk, 10:271] records three specimens from Long Island, as follows: Great South bay, November 1846; Islip, March 18, 1849; Montauk, March 2, 1872. Dr Braislin in the *Auk*, volume 20, page 52, records a specimen from Sag Harbor, October 18, 1889. This bird, I read in Mr Dutcher's notes, was a male in beautiful plumage and was shot by Mr Byram whose dog flushed it from the rushes near his house. Mr Arthur Helme reports that he saw a flock of 11 White-fronted geese near Miller's Place April 5th, 1883. The only specimens of this goose actually taken in New York State as far as I can find are those recorded by Giraud, Dutcher and Braislin, consequently it must be regarded fully as rare as the Blue goose. The American white-fronted goose breeds on the Arctic coast of Alaska and Mackenzie region; also on the west coast of Greenland. It migrates mostly west of the Mississippi river and winters chiefly in Texas and Mexico and on the Pacific coast from lower California to the Puget sound.

***Branta canadensis* (Linnaeus)**

Canada Goose

Plate 22

Anas canadensis Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 123

DeKay. Zool. N. Y. 1844. pt 2, p. 348, fig. 237

Branta canadensis A. O. U. Check List. Ed. 2. 1895. No. 172

bran'ta, made from Gr. *βρέθος*, some water bird; *canaden'sis*, of Canada

Description. Head and neck black with a broad white chin patch extending upward on the sides of the head; general color brownish gray, the feathers edged with paler; rump and tail blackish; upper tail coverts

distinctly white; lower belly and crissum white; bill and feet black; iris brown; tail usually contains 18-20 feathers.

Length 35-37 inches; extent 60-65; wing 18-20; tail 7; tarsus 3-3.6; bill 2; weight 8-14 pounds.

Field marks. The wild goose does not always fly in a wedge-shaped flock as is often asserted, but they are usually seen in flocks and their large size combined with their slow, measured wing strokes, and the long black neck with its white throat patch, as well as the white upper and under tail coverts, serve as distinguishing marks of this species. Its loud trumpetlike honks which are almost always heard as they pass over, is a sound well known to all gunners and country people.

Distribution and migration. The wild goose is probably the best known of all the waterfowl in New York State. Its migrations herald the approach of spring as well as of winter in all portions of the State. It is fairly common throughout the winter along the Long Island coast and frequently remains through the winter in western New York, as it did on Canandaigua lake in the winters of 1905-6 and 1906-7. It is fairly common as a transient in almost every county in the State, but rarely descends from its migration flight for any extended sojourn, except in the vicinity of large bodies of water, where it can rest without being molested. Along Long Island it is abundant in migration time from the 10th to the 30th of March, remaining till the 20th of April, sometimes as late as the 7th of May. In the fall it has been noted as early as September 8th, but usually makes its appearance from the 10th to the 20th of October and the greater numbers pass southward from the 1st to the 20th of December. In the interior of New York the migratory flight often begins as early as the 20th or 24th of February, but usually occurs from the 4th to the 16th of March, the species being commonest in the early part of April and passing northward from April 20th to May 8th. In the fall it makes its appearance from the 6th to the 13th of October and usually disappears from the 15th to the 30th of November. The principal summer home of the Canada goose is from Minnesota to Oregon and northward to the Yukon and northern Canada to the limit of trees. It breeds in northern Ontario, Quebec, Newfoundland and casually in Massachusetts and Vermont. No breeding

record for New York State has come to my notice. In winter it inhabits the southern half of the United States.

While most species of our wild ducks have been rapidly decreasing in numbers, the wild goose has apparently held its own in New York, probably because the breeding grounds of those geese which visit our State have not yet been disturbed by the development of the northwest. Our geese undoubtedly breed in western Labrador and the Hudson bay region and cross the country at large in their migrations, not following the lakes as much as the ducks which come to us from the interior. These birds are often seen migrating at a great height in their well known wedge or drag shaped formation, taking a direct course for the desired destination. Mr Verplanck Colvin noticed them during his Adirondack survey, taking a southward course over the summit of Mt Marcy. The appearance of wild geese in the fall is considered the certain forerunner of sharp weather, and in the spring they invariably appear at the first breaking up of the ice in our bays and marshes, the arrival being announced by their trumpetlike honkings.

Geese feed on the scattered grain which is left unharvested, and the tender shoots of winter wheat, and in spring on the seeds, roots and small animals found in the flooded marshes, passing to the feeding grounds early in the morning and late in the afternoon from the wide waters of the lakes where they rest from their enemies. They are exceedingly wary birds, some member of the flock always being on the watch for the slightest motion or suspicious appearance. When disturbed on one feeding ground, they immediately seek a safer pasturage, and they are rarely killed in any numbers in the interior of the State, except in very stormy or foggy weather, when they sometimes lose their way or become confused and many are then secured.

***Branta canadensis hutchinsi* (Richardson)**

Hutchins Goose

Anser hutchinsii Richardson in Swainson & Richardson. Fauna Bor. Am. 1831. 2: 470

Anser hutchinsii DeKay. Zool. N. Y. 1844. pt 2, p. 352

Branta canadensis hutchinsii A. O. U. Check List. Ed. 2. 1895. No. 172a

hutchinsi, of Mr Hutchins of the Hudson Bay Company

Description. Color exactly like the Canada goose; size smaller; tail of 16 feathers (sometimes 14 or 18 feathers).

Length 25-34 inches; extent 45-50; wing 14.75-17.75; tail 5-6; tarsus 2.25-3.2; bill 1.2-1.9.

This race of the Canada goose can be distinguished with certainty only by careful measurement and by counting the tail feathers.

According to Giraud and DeKay this species was not uncommon in their day at the eastern extremity of Long Island, where it was known as the "Mud goose," but I can find no recent records of it in Mr Dutcher's Long Island notes. Mr F. T. Pember reports a specimen from Hebron, Washington co., which was killed about 1880. Mr F. S. Webster states that it was once taken in Rensselaer county. Mr Foster Parker has a specimen in his collection killed at Cayuga about 1880, which is on the border line between the dimensions of this species and the smallest for the Canada goose. There is a specimen in the State Museum, killed at Gaines, Orleans co., in 1888, recorded by Posson [Auk, 16:193]. Dr W. M. Beauchamp in a letter to Dr Farr dated January 31st, 1900, reports a specimen shot at Baldwinsville, September 13th, 1897. It is probable that this subspecies is more common in western New York than these meager data would indicate, but it is overlooked by the ordinary observer, being considered merely the young of the Canada goose. The summer home of the Hutchins goose is principally along the Arctic coast from Melville peninsula to the mouth of the Mackenzie and the interior of Alaska. Its winter home is chiefly in California and the other southwestern states and its line of migration lies almost wholly west of Hudson bay and the Mississippi river.

***Branta bernicla glaucogastra* (Brehm)**

Brant; Light-bellied Brant

Plate 22

Branta glaucogastra Brehm. Handbuch Vög. Deutschl. 1831. p. 849

Anser bernicla DeKay. Zool. N. Y. 1844. pt 2, p. 351, fig. 239

Branta bernicla A. O. U. Check List. Ed. 2. 1895. No. 173

ber'nicla, from Old Eng. bernekke, the barnacle said to be named from this bird

glaucogas'tra, Gr. *γλαυκός*, shining; *γαστήρ*, belly

Description. Head, neck and forepart of body shiny black, giving way abruptly to the brownish gray of the back and the lighter ashy gray of the under parts, the body feathers edged with paler; patch of white streaks

on each side of the neck; upper and under tail coverts and lower belly white; bill and feet black; iris brown.

Length 23-25 inches; extent 48-52; wing 12.5-13.5; tail 4.5; bill 1.3-1.35; tarsus 2.2-2.3; weight 4 pounds.

Distinguishing marks. The Brant differs from the Canada goose in having a black breast and lacking the white patch across the throat and the sides of the head, and from the Black brant in its whiter belly, which gives way abruptly to the black of the breast.

Distribution and migration. On Long Island waters the Brant is a common migrant, arriving from the south between the 15th of February and the 15th of March and remaining until the middle of May, a few being found until the last of that month. In fall it usually makes its appearance from the 10th to the 20th of October, a few sometimes being seen as early as the 8th of September. The most of them pass southward between the 1st and the 20th of December, but a few remain all winter. The summer home of this species is on the west coast of Greenland north of latitude 62 degrees, and the islands of the Arctic ocean north of latitude 74 degrees probably as far westward as Wellington channel and probably as far northward as land extends. Its line of migration is almost entirely along the coast, few specimens being recorded from the interior. Its principal winter range is from New Jersey to Florida.

Two specimens from Cayuga lake, November 26, 1878, and December 1877, are reported in the Auburn List; one from Buffalo by Bergtold; one from Irondequoit bay by J. H. Fleming of Toronto; from Troy by F. S. Webster; from Homer by Haight Brothers; and from Seneca river by Foster Parker.

***Branta nigricans* (Lawrence)**

Black Brant

Plate 22

Anser nigricans Lawrence. Ann. Lyc. N. Y. 1814. 4: 171
A. O. U. Check List. Ed. 2. 1895. No. 174

nigricans, Lat., blackish

Description. Similar to the common, or Light-bellied brant, but darker on the upper parts, and the black of the neck and forebreast extend-

ing backward over a large portion of the under parts, fading on the lower belly, but *not showing any sharp line of division* between the black of the breast and the lighter color of the lower belly; crissum *decidedly white*; white collar broader than in the preceding species and meeting on the front of the neck.

Dimensions the same as for *Branta bernicla glaucogastra*.

The Black brant is an accidental visitant in New York State, only three records having come to my knowledge.

Off Islip, L. I. 1840. Dutcher, Auk, 10: 271

Babylon, L. I. Spring 1889. Dutcher, Auk, 10: 266

Oneida lake, N. Y. Oct. 30, 1891. Dexter, Auk, 11: 163

The summer home of this species is on the coast of northeastern Siberia, northern Alaska and eastward at least to the Anderson river. Its winter home is on the shores of the Pacific, ranging on the American side from Washington to lower California. East of the Rocky mountains it is only a straggler.

***Branta leucopsis* (Bechstein)**

Barnacle Goose

Anas leucopsis Bechstein. Orn. Taschb. Deutschl. 1803. 424

Branta leucopsis A. O. U. Check List. Ed. 2. 1895. No. (175)

leucop'sis, Gr. λευκός, white, and ὄψις, appearance, face

Description. *Adult:* Front, sides of the head and chin white, a black line from bill to eye; rest of head, neck, and forepart of body black; scapulars, wing coverts and inner secondaries bluish gray, barred with bluish black and whitish; wings and tail blackish; breast and belly grayish; crissum and tail coverts white; bill and feet black. *Young:* Face mixed with black; plumage washed with reddish brown.

Length 25-28 inches; wing 17; tail 6; bill 1.5; tarsus 2.75.

This old world species is an accidental visitant in the eastern United States and has been taken once in New York near Jamaica



Barnacle goose, *Branta leucopsis* (Bechstein). From Hudson's *British Birds*. 1/2 nat. size

bay, L. I., about October 20th, 1876, recorded by George N. Lawrence [N. O. C. Bul. 2: 18, also in Forest and Stream, 7: 181, 276].

Olor columbianus (Ord)

Whistling Swan

Plate 22

Anas columbianus Ord in Guthrie's Geogr. Am. Ed. 2. 1815. p. 319

Cygnus americanus DeKay. Zool. N. Y. 1844. pt 2, p. 353, fig. 235

Olor columbianus A. O. U. Check List. Ed. 2. 1895. No. 180

ō'lor, Lat., a swan; *columbia'nus*, of Columbia river

Description. *Adult:* Plumage entirely white, sometimes with a rusty tinge about the head and breast; bill black with a *yellowish spot in front of the eye*; feet black; iris brown. *Young:* Ashy gray, with brownish wash on head and upper neck; smaller than the adult; feet light colored; middle portion of bill largely flesh-colored. Weight 12 to 19 pounds.

COMPARATIVE DIMENSIONS OF THE WHISTLING AND TRUMPETER SWANS

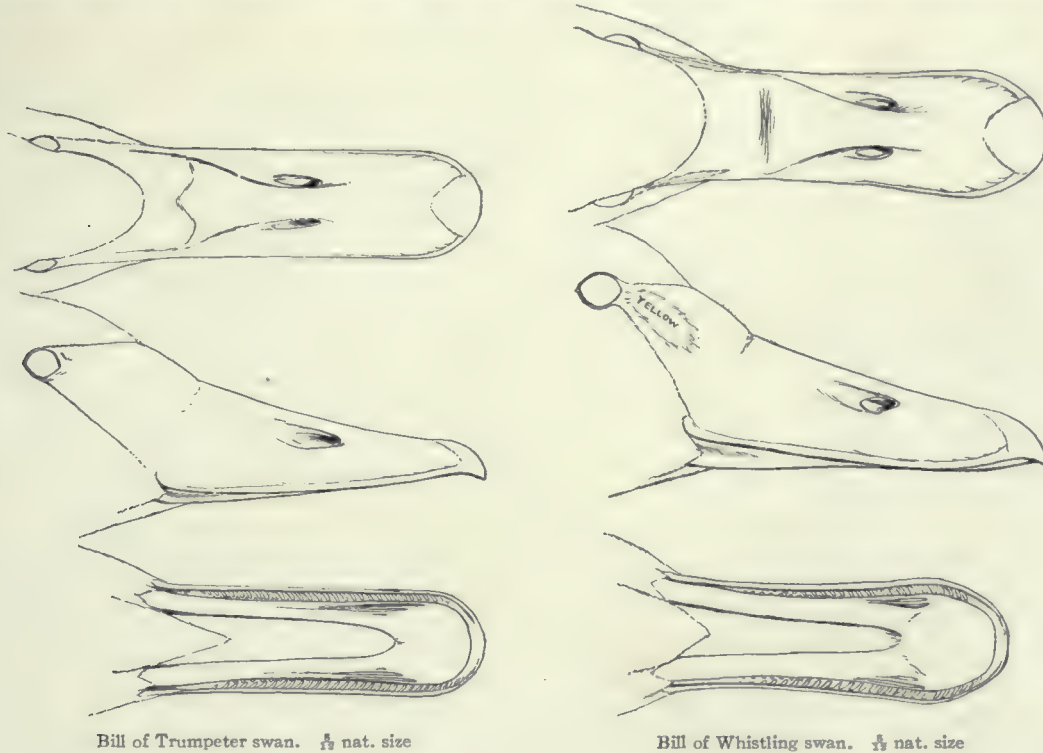
	Length	Extent	Wing	Tail	Bill, culmen	Eye to nostril	Rear of nostril to tip of bill	Tarsus	Middle toe
Columbianus.	4.5 ft	6-7 ft	21-22 in.	7-8 in.	3.62-4.25 in.	2.45-2.55 in.	1.86-2.16 in.	4.-4.35 in.	5.5-6 in.
Buccinator ..	5.-5.5	8-9.75	21-27.5	8-9	4.22-5.	2.76-2.94	2.62-2.77	4.5-5.	5.5-6.5

The smaller dimensions are of immature specimens, and young of the year are still smaller in each species.

Distinctive marks. This swan is distinguished from *O. buccinator*, the Trumpeter swan, by its smaller size, 20 instead of 24 tail feathers, yellow or yellowish spot on the side of the bill, and particularly by the different shape and dimensions of the bill, as shown by the above measurements [see also text figure]. The sternum is hollowed out to receive a long fold of the trachea, which is more convoluted in *buccinator*, forming a vertical as well as a horizontal fold.

The Whistling swan, or American swan, breeds in the arctic regions and appears in New York as a spring and fall migrant both on the coast and on the interior lakes. It is more common in western New York than on the coast and may be regarded as a regular migrant, appearing in spring

from the 13th to the 28th of March and is rarely seen later than the 10th of April. In the fall it appears from October 21 to November 8 and has not been recorded later than December 24. Many mounted specimens of this bird, killed in western New York, have come under the author's observations, but in most cases it has been impossible to obtain any definite information concerning the date of their capture. DeKay's statement



Bill of Trumpeter swan. $\frac{1}{2}$ nat. size

Bill of Whistling swan. $\frac{1}{2}$ nat. size

that the swan formerly bred in Hamilton and Herkimer counties was based on the testimony of residents who undoubtedly made the report on insufficient evidence. At any rate, we have no good reason to believe that this bird ever bred in New York State, although it was unquestionably much more common in early times. Following are a few records of its occurrence in recent times.

Black river, Lewis co., N. Y. March 1826. (Flock). "Hough, History of Lewis county"
 Lake Champlain, N. Y. About 1870. F. T. Pember
 Montauk Point, L. I. About 1874. (J. Miller, J. Scott). Dutcher

- Mount Morris, N. Y. Apr. 1875. Fraine. Forest and Stream, 4: 199
 Cayuga, N. Y. Spring 1875. Fowler. Forest and Stream, 7: 230
 Northwestern Pa. Mar. 22, 1879. Sennett, N. O. C. Bul. 5: 127
 Southwestern N. Y. (Numbers brought down by sleet storm and captured)
 Seneca river, N. Y. Apr. 1880. Fowler, Wright & Rathbun, O. & O. 7: 133
 Highland Falls, N. Y. Oct. 21, 1880. Mearns List
 Shinnecock bay, L. I. Nov. 26, 1886. Forest and Stream, 27: 364. Dutcher, Auk,
 5: 176
 Medina, N. Y. Spring 1886. Posson
 Lockport, N. Y. Mar. 20, 1886. Cook, Biological Survey Bul. 26
 Reed pond, Montauk, L. I. Nov. 5, 1886. (Juvenal). (Shot by George Hand).
 Dutcher, Auk, 5: 176
 Branchport, N. Y. Mar. 31, 1888. (3). Verdi Burtch
 Niagara co., N. Y. Below Niagara Falls. Mar. 30, 1889. (Several each season).
 Davison, Forest and Stream, 30, 34, 32: 295
 Deerfield, Oneida co., N. Y. Mar. 13, 1890. Ralph & Bagg, Auk, 7: 230
 Cayuga, N. Y. (About) Nov. 1894. Foster Parker, E. H. Eaton collection
 Scarborough, N. Y. Late Nov. 1897. Gerald Thayer
 Irondequoit bay, N. Y. Apr. 2, 1898. State Museum collection
 Honeoye lake, N. Y. Early Apr. 1898. (3 birds seen). Wallaëe Reed
 Flatlands, L. I. Dec. 24, 1901. Braislin, Auk, 20: 52
 Buffalo, N. Y. "Repeatedly shot." Ottomar Reinecke
 Canandaigua lake, N. Y. Mar. 25, 1905. (12). George B. Dixon, Ontario County
 Times
 Keuka lake, N. Y. Nov. 1, 1905. (5). C. F. Stone
 Manitou, Monroe co., N. Y. Nov. 2, 1905. John West, Democrat & Chronicle
 Rush, Monroe co., N. Y. Mar. 27, 1907. John S. Gray, Post Express
 Canandaigua, N. Y. Mar. 20, 1907. (28). Foster Burtis

The month of March 1908 was famous for the unprecedented migration of swans in western New York, and for the catastrophe which befell the birds on Niagara river. On March 17th, 12 swans were reported from Montezuma, and, on the 18th, 118 were seen at Mud Lock near Cayuga. These birds did not arrive in a single flock but "came in" in bunches of 15 or 20, and left sometime in the evening. On March 14th about 350 swans lit in the Niagara river near Grand Island, and on the 15th, about 11.30 a. m., more than 100 of them were swept over the falls and were taken from the river below the falls. Many of them would have survived but were killed by clubs and guns. On the 18th three more were killed, and on the 22d 12 more. This great slaughter of whistling swans was reported in the

Buffalo newspapers of March 17th, 1908, and by James Savage in the Buffalo Society Natural Sciences Bulletin 1908, volume 9, pages 23-28, and by Fleming in the Auk, volume 25, pages 306-9.

Olor buccinator (Richardson)

Trumpeter Swan

Cygnus buccinator Richardson in Richardson & Swainson. Fauna Bor. Am. 1831. 2: 464

Olor buccinator A. O. U. Check List. Ed. 2. 1895. No. 181

būccinā'tor, Lat., a trumpeter

This large species is a bird of western North America, but has been ascribed to the Atlantic states as a casual visitor by many authors. I have been unable to find any New York specimen of this swan although the Auburn List records it, page 36, as having been taken on Cayuga lake and the specimen was still extant in 1879. The Buffalo List, by Dr Gregg, page 6, also records it as an accidental visitant on the authority of the late Charles Linden, but no specimens are cited. I regret to state that I have been unable to trace the Cayuga specimen and hence can pass no judgment as to its authenticity. Also, a second specimen from Cayuga supposed to be this species, after careful measurements I have referred to *columbianus*. This bird was evidently an immature specimen, probably of the second year as it still retains the brownish or ashy tinge of the head and upper neck; but its dimensions reach the maximum for *columbianus*. Its bill though appearing perfectly black, after being scrubbed with alcohol, revealed the fact that it had been of an obscure flesh-color for a considerable space both before and behind the nostrils. Its tail feathers are 20 in number. The shape and proportions of its bill are more nearly those of *columbianus*.

It is probable that the Trumpeter swan was formerly an occasional visitor to this State in the days when all our waterfowl were more numerous, and such western species as the White pelican and Whooping crane are known to have been regular visitors on the Atlantic seaboard. It will be well for all sportsmen and ornithologists to make a sharp scrutiny of all

swans captured in this State in the hope that we may add this noble species definitely to our avifauna.

Order **HERODIONES**

Hérons etc.

Order Ardeiformes, Sharpe's Hand-List

Bill long, normally sharp and horny at tip with cutting edges (Cultrirostral type); skull sloping gradually to base of bill and intimately joined with it; nostrils small and elevated, with bony surroundings; head more or less naked at least on the lores; neck long, of 15 to 17 vertebrae, easily bent into a strongly curved S-shape; legs long, the tibiae bare below; toes long, the hind one nearly or quite on a level with the front ones; wings long and broad; tail short, of about 12 feathers; skull desmognathous; carotids double (abnormal in the Bittern); food chiefly fish, reptiles, amphibians, mollusks and other aquatic animals. These birds are preeminently waders (Grallatores), and stalkers (Gradatores), moving with slow and stealthy gait, often remaining motionless and standing on one leg. They seize their prey by a quick, straight thrust of the beak. From the nature of their feet they are mostly good perchers and nest largely in trees, the nest being bulky and rude, the eggs few and plain in color. The young are psilopaedic and altricial.

Family **IBIDIDAE**

Ibises

Bill long, slightly compressed, almost cylindrical, grooved, curved throughout; legs short for the order; front toes webbed at base; claws compressed, sharp, resting on a horny "shoe;" tail short, usually of 12 feathers; tarsus usually scutellate in front; palate schizorhinal; no basipterygoids; occipital foramina, ambiens, femorocaudal and its accessory, semitendinosus and its accessory present; pectoralis major simple; sternum two notched on each side; tongue very small; two coeca; feather tracts broad; no powder-downs.

There are about 32 species of ibises, confined to the tropical and warm temperate regions. They inhabit marshes, swampy rivers and lake shores, some of them resembling curlews in general appearance.



White ibis. *Guara alba* (Linnaeus). From specimen in American Museum of Natural History. $\frac{1}{2}$ nat. size

Guara alba (Linnaeus)*White Ibis*

Scolopax alba Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 145

Ibis alba DeKay. Zool. N. Y. 1844. pt 2, p. 230

Guara alba A. O. U. Check List. Ed. 2. 1895. No. 184

guara, South American name; *al'ba*, Lat., white

Description. *Adult:* White; tips of four or more outer primaries black; the bare face, bill and legs orange-red, the bill tipped with dusky; iris light blue. *Young:* Grayish brown, rump, base of tail and under parts white; face and bill yellowish; legs bluish gray; iris brown.

Length 24-26 inches; extent 40; wing 11-12.5; tail 5; bill 5-7, from the nose 4.6; tarsus 3.4-3.5; middle toe and claw 2.5.

I have been unable to find any record of the occurrence of this species on Long Island since the time of Giraud, who records a specimen which was shot at Raynor South in the summer of 1836, and another procured at Moriches in the early part of March 1843. About the year 1895 one was killed near Lake Ontario and mounted by a taxidermist in Rochester, N. Y., where the fresh specimen was observed by David Bruce and recorded in his correspondence with the State Museum.

The home of the White ibis, or "Spanish curlew," is in tropical America, extending as far north as southern Illinois and South Carolina. It is purely accidental in New York State.

Plegadis autumnalis (Hasselquist)*Glossy Ibis*

Tringa autumnalis Hasselquist. Reise nach Palästina. Deutsche Ausg. 1762. p. 306

Ibis mexicanus DeKay. Zool. N. Y. 1844. pt 2, p. 231

Plegadis autumnalis A. O. U. Check List. Ed. 2. 1895. No. 186

pleg'adis, Gr. πλεγάς, πλεγάδος, a sickle; *autumnā'lis*, autumnal

Description. *Adult:* Rich dark chestnut, glossed on the back, wings, tail, front of head with purplish green; sides and lining of wings dusky greenish; primaries greenish black; bill and legs blackish; bare face slaty blue or greenish; iris brown. *Young:* head and neck grayish brown

streaked with whitish; upper parts dusky green; bill yellowish and dusky; legs yellowish.

Length 24 inches; extent 36; wing 10-11.6; tail 4; bill 4.5-5.5; tibia bare 2.5; tarsus 3-4; middle toe and claw about 3.

This species is an occasional summer visitant in New York. Besides many rumors of its being seen, we have the following records of specimens taken:

Southampton, L. I. Sept. 12,

1847. Dutcher, Auk, 10: 271

Canarsie bay, L. I. Oct. 10,

1848. Dutcher, Auk, 10: 271

Auburn, N. Y. 1854. William

Hopkins, Bost. Soc. Nat.

Hist. Proc. 5: 13

Tonawanda swamp, N. Y. May

1889. Posson, Auk, 17: 193

Dunkirk, N. Y. April 1894. (J.

W. Ware). Savage, Auk, 12:

393. (A specimen evidently

this same bird reported by

Kirkover, Auk, 15: 50)

Rochester, N. Y. 1898. (Miller,

Newark, N. Y.). D. Bruce

Seneca river, N. Y. May 1902.

3 seen, 1 shot. F. S. Wright

Cayuga, N. Y. May 11, 1907. (3 seen, 2 taken). (Parker). Fuertes, Auk, 24: 338

" May 21, 1907. (3 seen).



Glossy ibis. *Plegadis autumnalis* (Hasselquist). From specimen (immature) in State Museum. $\frac{1}{2}$ nat. size

The Glossy ibis inhabits the tropical and warm temperate zones, in the United States straying northward to the Great Lakes and New England. The specimens taken by Mr Parker in the Montezuma marshes were evidently about to breed, the ova in the female being as large as BB shot.

***Plegadis guarauna* (Linnaeus)**

White-faced Glossy Ibis

Scolopax guarauna Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 242

Plegadis guarauna A. O. U. Check List. Ed. 2. 1895. No 187

guarāu'na, South American name

Distinguishing marks. Similar, both in size and color to the Glossy ibis, but the *lores* of the present species are *lake-red* in life and the *feathers*

surrounding the bare skin of the face are white, instead of blackish as in the preceding species; iris red.

The home of this species is tropical and warm temperate America, and in the United States extends from Texas and southern California to Wyoming and Washington. It has been found in Florida, but is extremely rare or purely accidental in the other eastern states. Its place in New York ornithology rests on a single specimen in the New York State Museum [No. 205] which was taken on Grand Island, Niagara river, August 1844 [see N. Y. State Mus. 3d An. Rep't, p. 22; also, Auk, 3: 253-54].



White-faced glossy ibis. *Plegadis guarauna* (Linnaeus). New York specimen in State Museum. $\frac{1}{2}$ nat. size

Family CICONIIDAE

Storks

Bill very stout at base and broad as forehead, long, decurved at the tip in our species, not grooved; nasal fossae wanting; tarsi mostly reticulate; claws on a horny "shoe," the middle one not pectinate; nasals holorhinal; semitendinosus muscle and its accessory present; accessory femorocaudal absent; two coeca; no powder-down.

There are 18 species or more of the Stork family found in the warmer regions of the globe. The Wood ibis, so miscalled, is the only New York species.

***Mycteria americana* Linnaeus**

Wood Ibis

Mycteria americana Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 140
Tantalus loculator A. O. U. Check List. Ed. 2. 1895. No. 188

myctē'ria, Gr. μυκτηρίζω, to turn up the nose

Description. *Adult:* White, the wing quills, primary coverts and tail glossy black; bald head "livid bluish and yellowish;" bill dingy yellowish;

legs blue; feet blackish, the webs stained with yellow; iris dark brown. *Young:* Head and neck downy; plumage grayish brown, the head becoming bare and the plumage white with age.

Length 35-46 inches; extent 66; wing 17.7-19.5; bill from nostril 7-8, depth at base 2 or more; tibia bare 6; tarsus 7-8.5; middle toe and claw 4.75; weight 9-12 pounds.

The home of the Wood ibis, or American wood stork, is in tropical and austral America northward to Virginia, Illinois and California. It is of accidental occurrence in New York, five specimens having been taken in the State as follows:

Sand Lake, Rensselaer co., N. Y.

June 24, 1876. (2). F. S.

Webster, N. O. C. Bul. 1: 96

Glennie Falls, Ulster co., N. Y.

July 8, 1884. Fisher, Auk,

2: 221

East Marion, L. I. June 21:

1890. Dutcher, Auk, 10,

266

East Galway, Saratoga co., N. Y.

Aug. 1896. S. R. Ingersoll

& A. S. Brower

Family ARDEIDAE

Bitterns and Herons

Bill narrow, wedge-shaped, straight, about as long as tarsus, with long nasal fossae; tarsi scutellate in front; toes long and slender; claw of middle toe pectinate, or comblike; hind toe very long on level with front toe and its claw long and curved in the true herons, straighter in the bitterns; head long, narrow, flattened and sloping gradually to the bill; gullet capa-



Wood ibis. *Mycteria americana* Linnaeus. From specimen in State Museum. $\frac{1}{2}$ nat. size

cious; wings very large and broad; tail short, of 10 feathers in bitterns, and 12 in the true herons; plumage very loose; powder-down tracts two pairs in bitterns, three pairs in herons. There is great seasonal change in plumage among the true herons, most of them developing dorsal, pectoral and nuchal plumes in the breeding season, the dorsal train reaching a marvelous development in the egrets. Some species are dichromatic. The voice is rough and croaking. The female is somewhat smaller than the male, and there is considerable individual variation in size, as well as in the color of the bill and legs. One leg is almost always larger than the other, probably from the habit of standing largely on one foot. Herons nest in trees on flat bulky nests constructed of sticks. The eggs are mostly from three to seven in number, oval in shape, usually of a pale bluish color. Young are born naked and are fed in the nest by their parents like all members of the order. Bitterns rarely perch on trees, and build their broad nest made of reeds or rushes on or near the ground. The eggs are light greenish white or brownish in color.

***Botaurus lentiginosus* (Montagu)**

American Bittern

Plate 23

Ardea lentiginosa Montagu. Orn. Dict. Sup. 1813

Ardea minor DeKay. Zool. N. Y. 1844. pt 2, p. 226, fig. 189

Botaurus lentiginosus A. O. U. Check List. Ed. 2. 1895. No. 190

botaurus, new Lat., a bittern; *lentiginō'sus*, Lat., freckled

Description. Upper parts brown, profusely mottled and freckled with buffy and ochereous; neck and under parts tawny white or ochery, each feather with a brown dark edged stripe; the throat line white with brownish streaks; a velvet black streak on each side of neck; crown and tail brown; a buffy stripe over the eye; quill feathers greenish black, washed with glaucous and tipped with brown; bill pale yellowish, brownish black on top and tip; legs greenish yellow; iris yellow.

Dimensions. This species varies greatly in dimensions. "Length 23-34 inches; extent 32-45; wing 9.5-13; bill 3; tarsus 3.5"; middle toe and claw about 3.5, the claw 1-1.12. The female is the smaller.

Distribution. This bird undoubtedly occurs, and probably breeds, in every county in this State. It is a fairly common summer resident on



Nest and eggs of American bittern.



American bittern brooding young



Young American bitterns showing first fear of man

eastern Long Island and on all the marshes of the interior. On the Montezuma marshes it is so common that a dozen birds may often be heard booming at the same time. Some of the upland counties may possibly be without breeding records for the bittern, but it seems to establish itself wherever there are weedy marshes 10 or more acres in extent. I have found it nesting at Elk lake within 10 miles of Mt Marcy, and it probably breeds in suitable localities throughout the Adirondack region whenever it is left undisturbed.

Migration. The bittern arrives from the 1st to the 10th of April in the southeastern part of New York, and from the 10th to the 20th of April in the western districts. On Long Island and in the interior the latest dates are from the 1st to the 15th of November.

Habits. From the time of its first appearance in April well into the month of June the booming of the bittern is one of the characteristic sounds of our marshes. The popular impression exists that the notes are produced while the bird's head is submerged, but such is not the case. On several occasions I have sat on a slope overlooking an extensive marsh where a number of bitterns were booming, and sometimes two or three could be seen at the same time engaged in the curious performance. They were standing quite motionless in the marsh, and every few minutes the desire to utter its love notes seemed to take violent possession of some one of the birds. It would stretch out its neck rather spasmodically, clicking its bill meanwhile three or four times, and begin a sinuous or pumping motion with the neck and forepart of the body, similar to the actions of a hawk or owl when disgorging a bone pellet, but with the head and bill inclined upward at an angle of 45 degrees or more. At each spasm or pumping motion the head and foreneck would shoot forward some distance, and the wondrous notes would finally come forth, resembling the syllables *pump-er-lunk*, or *plum pudd'n*, or, as one observer expressed it to me, *ugh plum pudd'n*, repeated several times. He certainly acts as if suffering from acute nausea, and the notes are fairly disgorged by the love-sick bittern. The sound has a hollow gurgling quality and has been compared to the sound of a wooden pump just as the water is about to come forth, or to the muffled bellow of a bull. At the distance of half a mile it is reduced to one syllable and resembles the sound made



American bittern brooding and defending young. (From *Bird-Lore*.
Photo by E. G. Tabor)

while driving a stake in the mud; hence the popular names of Thunder-pumper, Stake-driver, Bog-bull etc. Persons who are unfamiliar with the bittern's note pass it by unnoticed, and I have often stood on piers and bridges where several people were congregated and bitterns were booming near by, but no one seemed to notice the strange note and when asked concerning it, they usually admitted they had never heard it before.

When flushed from its retreat on the marsh or riverside, the bittern rises with a hoarse croak, its neck stretched out, its legs dangling, and seeming to shrink in mortal terror from the impending danger, until well under way, when it makes off with slow and measured stroke of its ample wings. Its nest is placed in a secluded part of the marsh among the grass and weeds and consists simply of a broad flat pile of dead grass, flags and weed stalks. The eggs are from three to five in number, of a brownish drab color, about 2 inches in length by 1.5 in lesser diameter.

The food of the bittern consists largely of frogs as well as all kinds of small animals which inhabit the marsh, even mice and small birds, but fish are rarely found in its stomach. It often stands motionless in the grass with its bill pointing upward, its attitude, streaked neck, general hue, and the black diagonal patch on the sides of its neck, all combining to render it invisible. On several occasions I have found it quite impossible to point out successfully to companions a bittern which was standing in full view at no great distance, and often, when finally successful, have been met with the assertion that it was no bird at all.

The bittern is now protected by our laws and I see no reason why such an interesting bird should not be preserved.

***Ixobrychus exilis* (Gmelin)**

Least Bittern

Plate 23

Ardea exilis Gmelin. Syst. Nat. 1788. 2:645
DeKay. Zool. N. Y. 1844. pt 2, p. 225, fig. 190
Ardetta exilis A. O. U. Check List. Ed. 2. 1895. No. 191

ixobrychus, perhaps from Gr. *ἰξός*, birdlime; and *βρῦχάομαι*, to bellow; *exi'lis*, Lat., slight, small

Description. *Male:* Crown, back, rump and tail glossy black, a narrow stripe of buffy along each side of the back; hind neck, part of the



Least bittern on nest. (From *Bird-Lore*. Photo by E. G. Tabor)

wing coverts, and the outer edges of the wing quills chestnut, the rest of the neck and the under parts in general varying from light buffy to brownish yellow, the chin and throat varied with whitish; bill pale yellow, turning to blackish along the culmen; lores yellowish green; legs green; eyes and toes yellow. *Female*: Similar to male, but brown where he is black and a broader stripe of buffy on the scapulars. *Young*: Similar to female, but the feathers of the upper part tipped with buff.

Length 11-14.25 inches; extent 18; wing 4-5.25; tail 2; tarsus 1.5-1.75; middle toe and claw 1.7-2.

Field marks. The very small size of this little heron together with its buffy and black coloration will serve to distinguish it as it flies low over the flags of the marsh, or stands immovable among the sedges. Its presence in the marsh, however, will more often be determined in the breeding season by its mellow cuckoolike call, "coo-coo-coo" from the depths of the marsh.

Distribution. The Least bittern is locally common as a summer resident in the marshes of Long Island, the Hudson valley and the region of Lakes Erie, Ontario and the central chain. It must occur, also, on the marshes of Lake Champlain, but I can find no definite records to this effect. It is apparently rare, or absent in the upland counties, but there are reliable records from Springville, Cincinnatus, Owego and other localities where there are no extensive marshes. Its proper range is tropical and temperate America as far north as Maine and Manitoba, and it winters from Florida southward. It arrives from the south from the 7th to the 20th of May on Long Island, the earliest record being April 27th. In western New York it arrives from May 10th to the 20th, and leaves for the south September 1st to 15th, sometimes remaining as late as October 10th.

The Least bittern is our smallest member of the family, and is of shy and gentle disposition, remaining hid in the long grass of the marshes and feeding on insects and small aquatic animals. It is sometimes seen flying low over the marshes but usually travels on foot, making its way through the rank grass of the marshes with great ease. It climbs through the grass from stalk to stalk and rarely wades. The nest is built among thick sedges, or cat-tails several inches above the water, poorly supported upon the growing plants, and is often flooded, or beaten down by storms. It is a rather

flat structure composed of dead grass and flags, the tops of the sedges about it usually being bent down to form a screen above the eggs after the manner of rails. The eggs are from four to seven in number, of a light greenish white, elliptical in shape, about 1.23 x .92 inches in dimensions. The young are quite downy but not thoroughly ptilopaedic and remain in the nest for some time.

***Ixobrychus neoxenus* (Cory)**

Cory Least Bittern

Distinguishing marks. *Neck and wing coverts rich chestnut; under parts rufous or light chestnut; under tail coverts black; males have no light stripe on side of back. Size of exilis.*

This species or color phase, whichever it is, has been taken several times at Toronto, and its nest found there. Although no specimens have been reported from New York it should occur on the Niagara river and along the southern shore of Lake Ontario.

***Ardea herodias* Linnaeus**

Great Blue Heron

Plate 24

Ardea herodias Linnaeus. Syst. Nat. Ed. 10. 1758. 1:143
DeKay. Zool. N. Y. 1844. pt. 2, p. 219, fig. 184
A. O. U. Check List. Ed. 2. 1895. No. 194

ar'dea, Lat., a heron; *hero'dias*, misspelled for Gr. *ἑρδιός* and Lat. *herodius*,
a heron

Description. *Adult breeding season:* Top of head, cheeks and chin white; sides of crown and occipital crest black; neck light purplish gray, the throat line streaked with black, white and rusty; upper parts mostly slaty blue; wing feathers deepening to black on the outer primaries; scapular and pectoral plumes largely pearl-gray; under parts largely black streaked with white; tibia and edge of wing chestnut-brown; bill and iris mostly yellow, the former dusky along the ridge, loral space blue; legs blackish.

Young: Top of head blackish, no pearl-gray plumes; upper parts more of a grayish blue tinged with rusty, especially on the wing coverts; the black of the under parts replaced by ashy gray.

Length 42-50 inches; extent 68-74; wing 18-20; tail 7-8; bill 4.5-6.5; tibiae bare 3-4; tarsus 6-8; middle toe and claw 5; weight 6-8 pounds. Young in the fall from 3.5 to 5 pounds.

Distribution. The Great blue heron is a common and well known transient visitant in all parts of New York, and is locally a summer resident on Long Island as well as in western, central and northern New York. Breed-

ing colonies formerly existed in every large swamp in the State, but constant persecution and the destruction of the large trees which furnished their nesting sites have greatly reduced the number of heronries. In recent years they still existed near Cherry Creek, Lime Lake, Dansville, Potter, Cincinnatus, Johnstown, Troy, Granville, Amenia, Jamaica sound, and many other localities, but most of these have passed into history within the last two decades. At present there are large heronries in the Tonawanda swamp near West Barre, Clyde river between Newark and Clyde, Oneida lake near Constantia, several localities in the Adirondack region, the largest probably being in the vicinity of Saranac and Cranberry lakes. According to Mr O. W. Degan of Plum island there was still a breeding colony on Gardiners island in 1900. At present there are not over 50 pairs in the West Barre heronry, but according to Mr William R. Maxon, there are about 500 pairs in that at Constantia.

Migrations. This is the hardiest of all our herons and is occasionally seen in midwinter both on the coast and in the interior about the open waters of springs and streams. The spring migration seems to begin about the same time on Long Island and in the interior; the earliest arrivals ranging from March 16th to April 5th, March 30th being the average date in most localities. The greater number depart for the south between the 5th and the 20th of November. It is commonest during April, and from August to October when the immature birds are likely to be found on every creek and mill pond in the State wherever they are unmolested.

The Great blue heron is a distinct addition to the picturesqueness of our lake shores and river courses. "The haunts of coot and hern" lose much of their charm when deprived of this stately bird. Like most of the herons it nests in colonies and the old birds visit the streams and marshes for miles around in search of their favorite food of fish, frogs etc. This heron is undoubtedly the most destructive enemy of all our native birds to trout streams and fish ponds. As it visits the ponds at night when the trout are feeding in shallow water, a few herons will often levy a toll of several dozens of fingerlings in a single night. When visiting trout ponds early in the morning, I have occasionally found fish which had been speared



Great blue heron, nest. The nesting trees die after a few years.

Photo by C. F. Stone



Great blue heron's nest and eggs

Photo by A. W. Perrior



Great blue heron. 5 nests in Constantia swamp

Photo by A. W. Perrior



Swamp at Constantia, Oneida lake. Site of great heronry

by the heron's daggerlike beak and drawn ashore only to be discarded because they were too large even for his capacious gullet.

The tallest trees in the swamp are usually selected for their nesting sites. The nest is a bulky affair made of large sticks and rather flat on top. The eggs are from three to six in number of a pale greenish blue, ellipsoidal in shape and about 2.55 by 1.52 inches in size. The young remain in the nest about four weeks and often set up a rattling clamor for food, resembling somewhat the barking of a litter of young dogs.

Herodias egretta (Gmelin)

American Egret

Plate 24

Ardea egretta Gmelin. Syst. Nat. 1788. 2: 629

Ardea leuce DeKay. Zool. N. Y. 1844. pt 2, p. 220, fig. 186

Ardea egretta A. O. U. Check List. Ed. 2. 1895. No. 194

egret'ta, from French *aigrette*, a kind of heron, also a plume

Description. *Adult in breeding plumage:* Entirely white; about 50 straight plumes, or "aigrettes," spring from the back and extend considerably beyond the tail; bill, lores and eyes yellow; legs and feet black. *Immature and adults after breeding season:* Without the dorsal plumes.

Length 36-42 inches; the train of plumes extending 10 or 12 inches farther; extent 53-56; wing 14.3-17; tail 5.6-6.5; bill 4.3-5; tarsus 5.5-6.75; tibia bare 3.5. The females have the smaller dimensions.

Distribution. This species inhabits tropical and temperate America as far north as Virginia and Missouri. After the breeding season it straggles northward as far as Oregon, Manitoba and Nova Scotia. In our State it is an occasional summer visitant. Giraud speaks of its occurrence on Long Island as "not frequent" and mentions a flock of five which remained on Coney island beach for several days. Numerous accounts of "White cranes" or White herons which have been seen in different parts of the State have come to my notice, and undoubtedly refer to this species. Besides these we have the following records of specimens taken or seen by reliable observers:

Auburn, N. Y., (William Hopkins). Bost. Soc. Nat. Hist. Proc. 1856. 5: 13

Ossining, N. Y. Early Sept. 1870. Fisher, N. O. C. Bul. 4: 62; Forest and Stream,

- Cattaraugus creek, Erie co., N. Y. Aug. 10, 1881. ♂ juvenal. Eaton, Auk, 13: 178
 Medina, N. Y. Ernest H. Short
 South Oyster Bay, L. I. Aug. 3, 1882. ♂. Dutcher, Auk, 1: 32
 Cayuga, N. Y. Aug. 1882. Parker
 Herkimer, N. Y. Spring 1882. Ralph & Bagg
 Sunham's bay, Lake George, Warren co., N. Y. Latter part of May or first of June
 1883. Merriam, Auk, 1: 59
 Carlton, Orleans co. 1883. (Davison). Forest and Stream, 24: 204
 Kent, Orleans co., N. Y. July 27, 1883. (3 seen, 2 killed). Posson, Auk, 16: 193
 Gardiners island, L. I. Summer 1884. W. W. Worthington
 Alcott, Niagara co., N. Y. Aug. 18, 1886. Davison, Auk, 4: 159
 South Barre, Orleans co., N. Y. About Apr. 25, 1887. (Col. Fred Miller). Neil F.
 Posson
 Deerfield and Marcy, N. Y. Nov. 10, 1889. Ralph & Bagg List, Auk, 8: 230
 Baldwinsville, N. Y. Sept. 1895. A. W. Perrior, "1896." W. M. Beauchamp
 Skaneateles, N. Y. About 1893.
 " Newark Valley, Tioga co., N. Y. June 1896. G. B. Sutton
 Jamaica bay, Queens co., L. I. Oct. 1, 1897. Braislin, Auk, 17: 69
 Montauk, L. I. July 23, 1900. Braislin, Auk, 19: 145
 Penn Yan, N. Y. Spring. Auburn List, Forest and Stream, 7: 325
 Dresden, N. Y. Years ago. James Flahive
 Ontario co., N. Y. Aug. 1905. Wallace Reed
 Shinnecock bay, L. I. July 17, 1884. Dutcher, Long Island Notes
 Fire Island, L. I. July 27, 1884. (Martin). Dutcher, Long Island Notes
 Southampton, L. I. Aug. 1890. (Burnett). Dutcher, Long Island Notes
 Long Island. (Years before 1890 mounted several, Knoess). Dutcher, Long Island
 Notes

***Egretta candidissima* (Gmelin)**

Snowy Heron

- Ardea candidissima* Gmelin. Syst. Nat. 1788. 2: 633
 DeKay. Zool. N. Y. 1844. pt 2, p. 221, fig. 187
 A. O. U. Check List. Ed. 2. 1895. No. 197

candidis'sima, Lat., very white

Description. *Adult:* Plumage entirely white; a train of about 50 plumes or "aigrettes" springs from the interscapular region, recurved at the tips; plumes also grow from the occiput and lower neck, the latter, however, are nearly straight. *Young:* Similar, but lacking the plumes. Lores, base of bill, eyes and toes yellow, tip of bill and legs black.

Length 20-27 inches; extent 36-41; wing 8.5-11; tail 4; bill 2.25-3.6; tarsus 3.25-4.5; tibia bare 2.5.

Field marks. This species may be distinguished from the white phase of the Little blue heron by having the wings entirely white and the legs black; and from the Large white egret by its smaller size.

Distribution. The range of this species coincides closely with that of the American egret. According to Giraud it was formerly not uncommon on Long Island from "late in the spring till the last of September." In early days it undoubtedly bred in the Long Island swamps, and as late as May 30th, 1885, Mr Dutcher saw three specimens on Great South beach which were evidently trying to nest [*see Auk*, 3: 435]. During the summers of 1881, 1882, 1883, 1884 and 1885 small companies of these birds numbering from three to seven were observed on different occasions along the south coast of the island, but since that time it is rare or only an occasional visitor [*see Dutcher, Auk*, 1: 32]. Dr Braislin in *Auk*, volume 17, page 169, mentions a flock of six or seven observed at East Rockaway in August 1899. Mr Hendrickson in Dutcher's Long Island Notes reports one from Queens county, May 16, 1889. Specimens from the interior have been reported from Buffalo, in Dr Bergtold's List, page 6, from Sing Sing by Dr Fisher, from Lake Ontario, 1889, by Chapman, *Forest and Stream*, volume 33, page 497, and from Saratoga county, summer of 1893, by Messrs Brower and Ingersoll of Ballston Spa.

Hydranassa tricolor ruficollis (Gosse)

Louisiana Heron

Egretta ruficollis Gosse. Jamaica. 1847. 338

Ardea ludoviciana DeKay. Zool. N. Y. 1844. pt 2, p. 223

Ardea tricolor ruficollis A. O. U. Check List. Ed. 2. 1895. No. 199

hydranas'sa, Gr. ὕδωρ, water, and βασίσα, queen; *tri'color*, Lat., three-colored; *ruficol'lis*, rufous-necked

Description. *Adult:* Bill very slender; feathers of head and neck elongated and pointed; upper parts slaty blue; back of head and most of neck deepening to purplish maroon; the longer feathers of crest white; upper throat, rump and under parts mostly white; jugular plumes purplish and plumbeous; a scapular train of fringelike plumes sweeping beyond the tail, "light drab" in color; legs dusky in front and yellowish behind; bill black

and yellow; lores yellow; iris red. *Young*: Without plumes; head and neck mostly rusty; upper parts plumbeous marked with rusty; otherwise similar to the adult.

Length 23-28 inches; extent 36-40; wing 8.5-11; tail 3.5; bill 3.6-5; tarsus 3.5-4; tibia bare 2.25; middle toe and claw 3.

Distribution. It ranges through tropical and austral North America, rarely north to New Jersey and Indiana. Its only claim to a place in the New York list rests on "a single specimen shot near Patchogue in the summer of 1836" [Giraud, *Birds of Long Island*, p. 282].



Louisiana heron. *Hydranassa tricolor ruficollis* (Gosse). From specimen in State Museum. $\frac{1}{2}$ nat. size

Florida caerulea (Linnaeus)

Little Blue Heron

Ardea caerulea Linnaeus. *Syst. Nat.* Ed. 10. 1758. 1:143
DeKay. *Zool. N. Y.* 1844. pt 2, p. 222
A. O. U. Check List. Ed. 2. 1895. No. 200

flor'ida, named for the state; *caerū'lea*, Lat., blue

Description. *Adult*: Usual phase slaty blue, becoming purplish chestnut or maroon colored on the head and neck; base of bill and bare loreal space blue; tip of bill and legs black; eyes yellow. *Young* (and sometimes adults): Pure white, the longer quills tipped with bluish slate. Specimens varied with patches of white are not uncommon. In the young, the legs, feet and lores are mostly greenish yellow, usually showing some trace of bluish.

Distinguishing marks. The slaty blue wing tips and the greenish yellow legs distinguish the white phase of this bird from the Snowy heron



Little blue heron. *Florida caerulea* (Linnaeus). From specimen in American Museum of Natural History.
 $\frac{1}{2}$ nat. size

at a considerable distance. The inexperienced sometimes mistake the Little green heron for this species, but a slight attention to the descriptions will dispel the error.

Distribution. This species inhabits tropical and warm temperate America from Guiana and Columbia to Kansas and Virginia, and like other southern species sometimes straggles northward as far as Nova Scotia and even to Labrador. It was rare on Long Island even in Giraud's day, and must be regarded as only an accidental summer visitant. The following are the records of specimens taken:

Great South bay, L. I. Aug. 17, 1847. Dutcher, Auk, 10: 271
 Shelter Island, L. I. Aug. 16, 1881. (Worthington). Dutcher, Notes
 Far Rockaway, L. I. Apr. 3, 1885. Lawrence, Auk, 2: 272



Little blue heron. *Florida caerulea* (Linnaeus). From specimen (immature) in American Museum of Natural History.
 $\frac{1}{3}$ nat. size

Moriches, L. I. July 1889. (T. M. Lawrence). Dutcher, Notes
 Shelter Island, L. I. Apr. 7, 24, 1891. (Byram). Dutcher, Notes
 Montauk, L. I. Apr. 20, 1898. Dutcher, Notes
 East Rockaway, L. I. Aug. 1899. Braislin, Auk, 17: 69
 Hempstead bay, L. I. Summer 1900. Braislin, Auk, 19: 146
 Also reported as seen at Oneonta by Yager in August 1899; and at Binghamton, May
 8-12, 1900 by Miss Lillian Hyde

***Butorides virescens* (Linnaeus)**

Green Heron

Plate 23

Ardea virescens Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 144
 DeKay. Zool. N. Y. 1844. pt 2, p. 224, fig. 188
 A. O. U. Check List. Ed. 2. 1895. No. 201

butorī'des, Lat. *butor*, bittern, and Gr. *εἶδος*, resemblance; *vires'cens*, Lat.,
 greenish

Description. The top of head crested and greenish black; rest of head, and the sides and back of the neck rich chestnut, washed with vinaceous; throat and narrow line down the foreneck whitish streaked with blackish; back and wing coverts green, the latter edged with buffy white, and the elongated interscapular feathers washed with glaucous or bluish gray; under parts brownish ash; quills and tail dusky with a plumbeous shade; bill dusky, base of lower mandible and lores yellow; legs greenish yellow. *Young:* Similar but the head and neck more rusty than chestnut and streaked with ochereous buff, no dorsal plumes; the wing coverts broadly margined with buffy.

Length 15.5-22 inches; extent 24-26; wing 6.4-8; tail 2.65; bill 2-2.5; tarsus 2; tibia bare .9-1.

Field marks. At a distance the Little green heron does not appear green and the old birds are much more likely to show a bluish cast from the plumbeous shading of the back and the wing quills. It may be distinguished from the bitterns, the only other small herons common in the State, by its prevailing dark coloration, while the bitterns are of a yellowish brown or ochereous hue.

Distribution. The Green heron is common in tropical and temperate America as far north as Manitoba and New Brunswick. In New York it is quite generally distributed, except in the Adirondack region, and probably

breeds in every county, excepting Franklin and Hamilton, and may yet be found in the lower portions of these counties. In the southeastern portion of the State it arrives from the south from the 6th to the 20th of April; in the western portions from the 25th of April to the 5th of May. Its time of departure in the fall seems to vary greatly according to different observers. I have found it in western New York to be from the 5th to the 15th of October and Dr Fisher in Westchester county from the 2d to the 20th of October. Others give it as early in September.

The Green heron, Fly-up-the-creek, Shitepoke or Chalk-line, is perhaps the most familiar member of this family in most parts of New York, as it is found along the small streams and ponds, as well as the larger swamps and lakes. Its food is principally frogs, minnows and crawfish. The voice of this little heron is shriller and less hoarse than those of the other herons, a somewhat guttural *qua-qua*. It is more easily ob-

served on account of its diurnal habits and like the Kingfisher and Spotted sandpiper is the interesting companion of many a canoe trip on our New York rivers. They breed singly or in small colonies, the nest being placed in an alder, willow or thorn tree not far from the creek and usually about 15 feet from the ground. It is a slovenly structure of small sticks and is con-



Photo by L. S. Horton
Green heron's nest and eggs

siderably smaller than a crow's nest, so loosely put together that the eggs may often be seen from the ground. These are from three to six in number, elliptical, pale greenish, and about 1.38 x 1.12 inches in size.



Young Green herons

Photo by L. S. Horton

Nycticorax nycticorax naevius (Boddaert)

Black-crowned Night Heron

Plate 24

Ardea naevia Boddaert. Tabl. Pl. Enl. 1783. 56

Ardea discors DeKay. Zool. N. Y. 1844. pt 2, p. 227, fig. 185

Nycticorax nycticorax naevius A. O. U. Check List. Ed. 2. 1895.
No. 202

nycti'corax, Gr. and Lat., Night-raven, the classic name of the Night heron;
na'vius, Lat., birth-marked, spotted

Description. *Adult:* Top of head, back and scapulars glossy greenish black; front and sides of head and lower parts generally white; rump, wings and tail ashy gray; two or more narrow white occipital plumes several inches

in length; bill black; lores greenish; legs yellow; eyes red. *Young:* Grayish brown above streaked and spotted with tear-shaped spots of buffy white; under parts grayish white streaked with dusky; bill dusky; legs dull grayish green; iris grayish brown.

Length 23-26 inches; extent 43-46; wing 11-13; tail 5; bill 3; tarsus 3-3.4; middle toe and claw 2.8-3.1; tibia bare 1.

Both species of Night heron are of medium size, about that of the common bittern; but shaped quite differently from the other herons. Their bodies are stouter and the neck and legs comparatively short. Their bills are also shorter and stouter than those of the other herons. The present species is the one common in New York State and can easily be distinguished from the Yellow-crowned species when in the adult plumage, but careful attention must be given to immature specimens to determine them accurately. The common Night heron is well known in the vicinity of its rookeries by its nocturnal habits and the hoarse cry which has given it the common name of *Quawk*.

The Quawk is a common summer resident on Long Island and in the Hudson-Champlain valley as far north as Washington county, but is quite local in distribution, being confined to the vicinity of a few large heronries during the breeding season. The most famous of these heronries have been located in Nassau county; on Gardiners island; on Constitution island, Hudson river; and near Dunsbach Ferry, Saratoga co. Less important breeding stations have existed in recent years near Granville, Washington co.; at West Seneca and Boston, Erie co.; and various localities on Long Island and the Hudson river. It is a regular transient visitant on the central lakes and along Lakes Erie and Ontario, young birds being not uncommon about the last of September, but whether these come from heronries located in the Ontario-St Lawrence valley, or are wanderers from southern localities, I am unable to state. This bird often remains throughout the winter on Long Island, but the usual winter range is from Virginia southward. It inhabits the greater part of America from Argentina to Manitoba and New Brunswick.

Nyctanassa violacea (Linnaeus)*Yellow-crowned Night Heron**Ardea violacea* Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 143

DeKay. Zool. N. Y. 1844. pt 2, p. 228, fig. 199

Nycticorax violaceus A. O. U. Check List. Ed. 2. 1895. No. 203*nyctanas'sa*, Gr. νύξ, night, and, βασίσα, queen; Lat. *violā'cea*, violet-colored

Description. *Bill very stout, much shorter than tarsus; general color bluish plumbeous striped above with black; top of head and elongated patch on its side white, rest of head black; bill black; lores greenish; eyes orange.*

Young: Similar in color to the young of the preceding species, but the top of the head is blackish, marked with buffy white, and the quills slate color without rufous markings. The general color is somewhat darker.

Length 22-27 inches; extent 44; wing 10.5-12.5; tail 5; bill 2.5-3, depth at base .7-.94; tarsus 3.25-4; tibia bare 2; middle toe and claw 2.75.

The home of this species is in tropical and austral America, north to Illinois and North Carolina, straggling northward as far as Nova Scotia. It is one of the rarest of herons in New York State. Giraud and DeKay give no definite records and evidently took its occurrence for granted. Charles Linden in the Buffalo List, page 7, speaks of it in the same indefinite terms. Mr Truman R. Taylor of Rochester, N. Y., writes that he examined a specimen killed several years



Yellow-crowned night heron. *Nyctanassa violacea* (Linnaeus). From specimen in State Museum. $\frac{1}{4}$ nat. size

ago at Long Pond, Monroe co.; and Mr Arthur Babson that he took a specimen at Bellport, L. I. in 1897. The only specimen recorded by Mr Dutcher [see Auk, 10: 266] was killed at Freeport, L. I., in April 1893. Another specimen was taken at Wading river in April 1901 by A. Hoffman and is now in the collection of Arthur H. Helme [Braislin, Birds L.I., p. 54]. A fourth Long Island specimen was taken at Orient in the fall about 1892 and is owned by Dr Henry Heath of Brooklyn [Braislin, Auk, 24: 187]. A fifth was observed at Orient, May 4-7, 1905, by Roy Latham [Braislin, *loc. cit.*].

Order **PALUDICOLAE**

Marsh Birds

Orders Ralliformes and Gruiformes, Sharpe's Hand-List

This polymorphic and unsatisfactory group includes several extralimital families of widely divergent characters. In North America it is represented by two suborders, the Grues, or Cranelike birds, and the Ralli, or Raillike birds.

Family **GRUIDAE**

Cranes

Heronlike in stature; neck and legs much elongated; head partly naked, wattled and sparsely grown over with stiff hairs; bill rather long, straight, and blunt pointed; nasal fossae short and shallow; nostrils, near middle of bill, open and pervious; tibiae largely bare; tarsi scutellate in front; toes rather short, webbed at base; hallux small and elevated; wings large, the rear edge when spread curving forward on account of the shortening of the outer cubitals; inner wing feathers flowing; fifth cubital wanting; plumage compact; no powder-downs; tail short, of 12 feathers; palate schizognathous; nasal schizorhinal; no basipterygoids; coeca very long; oil gland tufted.

There are 18 species of cranes, found in nearly all parts of the world. They are striking and graceful in appearance and are famous in the countries which they inhabit for their migratory flights which are performed in Indian file at a great elevation and heralded by their raucous, rattling clamors. Their flesh is esteemed for food, but they are very wary and

difficult to procure. They subsist principally on frogs, insects, snails and mice, in fact are rather omnivorous feeders. Cranes nest on the wide unfrequented plains and marshes of the Northwest, in America, and are fast being driven to the more remote mountains and arctic marshes. The eggs are usually two in number, of a brownish drab color, irregularly spotted with different shades of brown. The shell is quite rough with warty elevations. The young are covered with down and run about soon after hatching, but are fed for some time by the parents.

Grus americana (Linnaeus)

Whooping Crane

Ardea americana Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 142

Grus americana DeKay. Zool. N. Y. 1844. pt 2, p. 218

A. O. U. Check List. Ed. 2. 1895. No. 404

grus, Lat., a crane; *americā'na*, American

Description. Plumage *white*, except the *wing quills* which are *black*; the bare skin of the head *carmine red* with a growth of black hairs; bill dusky greenish; legs black; eyes yellow. *Young*: Head feathered; general color whitish, washed with rusty brown.

Length 50-54 inches; extent 90; wing 22-25; tail 9; bill 5.5-6; depth at base 1.4; tarsus 11-12; middle toe and claw 5.

The home of this bird is in the interior of North America from Minnesota and Dakota to Slave lake and south in winter to Florida, Texas and Mexico. In colonial times it was evidently common in the Atlantic States as far as New Jersey, New York and New England, but there are no definite records for New York in recent times. I was told that a specimen of this bird, mounted about 15 years ago at Ward's Natural Science Establishment in Rochester, N. Y., was killed near Cayuga lake, but I have been unable to trace the specimen. In recent years its line of migration lies almost wholly west of Lake Michigan.

DeVries in his Journal, describing the country of New Netherlands, mentions White cranes as occurring (1639-42) with the swans, geese and ducks which swarmed on the coast of New York bay [see N. Y. Hist. Soc. Col. 2, 3, 110].

Grus mexicana (Müller)*Sandhill Crane*

Plate 24

Ardea (*Grus*) *mexicana* Müller. Syst. Nat. Sup. 1776. p. 110
Grus americana DeKay. Zool. N. Y. 1844. pt 2, p. 218 (part)
Grus mexicana A. O. U. Check List. Ed. 2. 1895. No. 206

mexicā'na, of Mexico

Description. Whole plumage *brownish gray*, or bluish gray; bare portions of the head dull red sparsely overgrown with stiff hairs. *Young:* Varied with rusty brown; the head entirely feathered.

Length 40-48 inches; extent 80; wing 21-22.5; tail 9; bill 5-6, depth at base .95-1.1; tarsus 9.5-10.6; middle toe 3.5; tibia bare 4.6-5.

For the benefit of those who persist in calling the Great blue heron a crane, it may be said that these birds have a superficial resemblance to each other, but belong to different orders and are quite different in details of structure and habits. A slight attention to the description and plate 24 will show the difference between them. Furthermore the crane is not found in the Eastern States, except in very rare instances.

Although this bird occurred in New York during colonial times, neither Giraud nor DeKay mention it as having been taken within our borders. It is included in Dr Bergtold's Buffalo List as an accidental visitant, on the authority of Charles Linden and Otto Besser. Mr Posson in his manuscript notes on the birds of Orleans county states that a specimen of this species "was secured near Albion about 1880, and another in the town of Clarendon, about 1886." Mr David Bruce writing to the State Museum says, "a fine example was shot by Mark Cooke of Brockport, May 20, 1885. It was in fine plumage and had been for several days in the same place." This is evidently the second specimen referred to by Mr Posson, who gives David Bruce as his authority. I have talked with Mr Bruce and others who saw this specimen before it was destroyed by fire in the meat market at Brockport, and am convinced that there was no error in regard to the identity of the bird, or the place of its capture.

Family **RALLIDAE***Rails, Gallinules and Coots*

Size medium to small; body compressed; head rather small and narrow; thighs very muscular; legs stout; toes very long, the hallux much longer than in Limicolae and lower down; bill not sensitive, short and somewhat henlike in the crakes, gallinules and coots, but long and slightly curved toward the end in rails proper; nostrils pervious; wings short, rounded and feeble; tail short, of 10 or 12 weak feathers; colors subdued and blended; palate structure schizognathous; nasals holorhinal; no basipterygoids; ambiens present, also gall bladder, two carotids and long coeca; plumage aftershafted; oil gland tufted.

Rails and gallinules are marsh birds, very secretive in habits, keeping well under cover of the dense rushes and grasses, except at night or in the twilight, when they venture out on the muddy shores. When silently floating along the marshy stream, one may often see them standing motionless near their favorite coverts, or walking deliberately along the margin flirting their upturned tails and bobbing their necks in henlike fashion. Their cries are also loud, and remind one of the different notes of our domestic fowl. Consequently all our species of the family, from the Virginia rail to the Coot, have received the common name of Mud hens in this part of the country. The flight of rails and gallinules is feeble and hesitating. They usually take wing as a last resort, and then proceed with dangling legs, in a direct course, low over the tops of the rushes, dropping abruptly in a few rods amidst the grass, as if exhausted by their unwonted exertion. They are perfectly at home on the ground, and dart among the dense weeds with marked freedom, the long toes keeping them from sinking in the mud or submerged vegetation, their thin bodies gliding easily between the reeds. The eggs are numerous, oval or elliptical in shape and sparsely spotted; the young are precocial. The food consists of all kinds of aquatic animals, and the seeds and tender shoots of plants. The family numbers about 180 members, in all parts of the world.

This is an ancient family, rich in fossil species, and some insular varieties, like the wekas of New Zealand, are entirely flightless. The family in

general is considered degenerate and several species are threatened with extermination. We fear that our own Black rail may be among this number.

***Rallus elegans* Audubon**

King Rail

Plate 25

Rallus elegans Audubon. Ornithological Biographies. 1835. 3: 27, pl. 203
DeKay. Zool. N. Y. 1844. pt 2, p. 260, fig. 221
A. O. U. Check List. Ed. 2. 1895. No. 208

ral'lus, Lat., rail, referring to the rattling cry; *'legans*, choice, elegant

Description. Upper parts *brown*, or brownish black, the feathers broadly *margin'd with tawny olive*; wing and tail feathers olive-brown; wing coverts varying from rufous to rich chestnut; top of head and hind neck plain dark brown; throat and line over the eye nearly white; *breast* and *foreneck deep cinnamon* or rufous; sides, flanks and axillars brownish black, distinctly barred with white; under tail coverts white coarsely spotted with blackish; bill dusky brown on top and tip, base and lower mandible mostly yellowish brown; legs yellowish brown; eyes reddish brown; legs and bill tinged with reddish in high plumage.

Length 17-19 inches; extent 23-25; wing 6-7; tail 2.5; bill 2.1-2.5; tarsus 2.3; middle toe and claw 2.2-2.6; tibia bare about .7-1.

Field marks. The King rail is distinguished from the Virginia rail by its much greater size; from the Clapper rail by the general olive-brown, instead of grayish color of the upper parts, and the bright rufous instead of buffy breast. It is also a fresh-water species, whereas the Clapper rail inhabits the salt or brackish marshes.

Distribution. The King rail inhabits the eastern half of the United States, being resident in the Southern States. In New York it is apparently an uncommon summer resident and is most abundant in the great marshes of central and western New York. Dutcher records four specimens from Long Island [see Auk, 5: 176]. From western New York there are several records by Langille, Reinecke, Savage, Posson, Eaton and Bruce. These are mostly fall birds, killed in August, September and October. The earliest date of arrival in the State is March 3d, 1887, when a specimen struck the Montauk Light. The latest dates are November 2d, 1886,

Bayport, L. I.; late November, about 1894, a specimen taken by Foster Parker on the Cayuga marshes; December 3, 1897, James Savage took one at South Buffalo; Dr H. D. Reed reports a specimen taken at Ithaca, November 27th, 1901. These records, when considered with the New England records of December 14, January 20, and February, seem to indicate that the species may almost be regarded as a permanent resident at the northern limit of its range. It is a fairly common summer resident on the Cayuga marshes according to Mr Foster Parker who is well acquainted with it, but on account of its extreme shyness it is rarely seen. Mr Dutcher records a summer specimen from Shinnecock bay, L. I., but the exact date is unknown. Mr Reinecke found a nest and 10 eggs of this species at Point Abino, Ontario, near Buffalo, on May 30, 1894. He also skinned and dissected a specimen containing a fully developed egg, which was shot by George E. Harris in South Buffalo, May 23d, 1891.

So far as I know no one has seen the King rail in the act of uttering its note. Mr Brewster describes it as deep and guttural, sometimes harsh and vibrant, "a grunting *umph, umph, umph, umph*, the notes being on the same key and separated by rather wide but approximately regular intervals." Chapman describes its supposed call as "a loud startling *bup, bup, bup, bup, bup*, uttered with increasing rapidity until the syllables were barely distinguishable and ending somewhat as it began, the whole performance occupying about five seconds."

Rallus crepitans Gmelin

Clapper Rail

Plate 25

Rallus crepitans Gmelin. Syst. Nat. 1788. Ed. 1. 2: 713
DeKay. Zool. N. Y. 1844. pt 2, p. 259, fig. 222
A. O. U. Check List. Ed. 2. 1895. No. 211

crepitans, Lat., clattering

Description. Upper parts *ashy gray*, shading to olive-brown in the center of the feathers; neck and breast varying from creamy buff to pale

cinnamon-buff, often shaded with ash; sides, flanks and axillars grayish brown with narrow bars of white; wings and tail brown, the wing coverts pale cinnamon; throat, eyelids and line over the eye white.

Length 13.5-16 inches; extent 20; wing 5-6.25; tail 2-2.5; bill 2-2.5; tarsus 1.7-2.25; middle toe and claw 2-2.3.

Distribution. The Clapper rail ranges along the Atlantic seaboard of the United States, regularly to Long Island and casually to Massachusetts. It is a common summer resident on the salt marshes of our State and ascends the Hudson accidentally as far as Ossining. According to Mr Worthington it is rare in the vicinity of Shelter Island. It has been reported two or three times from the interior of the State, especially from Syracuse, by Mr Dakin, who was a careful ornithologist, but, in default of the specimens, we must infer that these interior records should be referred to the young of the King rail. This species is frequently met with throughout the winter on Long Island, but the principal number are migratory, arriving from the 3d to the 20th of April and departing late in October.

The Clapper rail, Salt-water marsh hen, or Mud hen, inhabits the grassy salt marshes of Long Island, Staten Island and New Jersey. They are abundant in the extensive marshes of the south coast of Long Island, but uncommon about the eastern end and on Staten Island. They remain under the cover of the dense sedge grass during the greater part of the day or when danger is near, and it is almost impossible to flush them, except at high tide when the marshes are flooded. Then if a boat is pushed through the grass they can be driven from their hiding places. In this manner they are shot in large numbers, but their flesh is much inferior to that of the Sora.

Clapper rails are noisy birds as both their scientific names and their common names would indicate. Their nest is concealed in the salt marshes and consists of a pile of dead rushes and grasses. The eggs are from 7 to 12 in number of a buffy or clay-white color, rather sparingly spotted with reddish brown and obscure purplish. The dimensions average 1.72 x 1.20 inches.

Rallus virginianus Linnaeus*Virginia Rail*

Plate 25

Rallus virginianus Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 263
DeKay. Zool. N. Y. 1844. pt 2, p. 261, fig. 223
A. O. U. Check List. Ed. 2. 1895. No. 212

virginiā'nus, of Virginia

Description. In color very similar to the King rail; but the sides of the head bluish ash; legs more reddish. *Immature:* Darker, more or less blackish below becoming whitish on throat and central line of the belly. *Downy young:* Uniform glossy black as in all the genus *Rallus*.

Distribution and migration. The Virginia rail is a fairly common summer resident on the marshes of Long Island and central and western New York, and undoubtedly breeds in every county of the State, with the exception of the Adirondack region. Along the smaller streams and



Virginia rail on nest. (From *Bird Lore*. Photo by E. G. Tabor)

marshes it is less common, but everywhere is more abundant than is popularly believed. It arrives from the south in April, from the 10th to the 27th, and leaves for the south late in October, passing the winter in the Southern States, Cuba and Central America. The breeding range seems to be confined to the upper austral, transition and lower boreal zones.

The Virginia rail, or little Mud hen, inhabits the grassy marshes, keeping rather more on the landward side than the Sora, and usually placing its nest on dryer ground and rarely in the flooded marshes. It is well concealed in the brush, or dense grass, and is composed of dead flags or grasses, piled



Virginia rail's nest and eggs

Photo by James H. Miller

up in a rather shallow, flat mound. The eggs are usually 8 to 12 in number, pale grayish or buffy white, spotted with reddish brown and obscure lilac, averaging about 1.25 x .95. Mr Brewster gives us an admirable account of its notes as follows: "About the middle of April we begin to hear in our marshes, usually in the early morning, late afternoon or during cloudy weather, and coming from some briary thicket or bed of matted reeds, a guttural *cut, cut, cutta-cutta-cutta* repeated at brief intervals, often for hours in succession. This is occasionally interrupted or closely followed by a rapid succession of low, yet penetrating grunts not unlike those of a hungry pig. The Virginia rail is the author of both these sounds, the former appearing to be peculiar to the male and, no doubt, his love song. When heard very near at hand it has a peculiar vibrant quality and seems to issue from the ground directly beneath one's feet. The grunting notes are given by both sexes but, with rare exceptions, only during the breeding season. The female when anxious about her eggs or young also calls *ki-ki-ki* and sometimes *kiu* like a Flicker." [Bird-Lore, 4, 2, 47]

Porzana carolina (Linnaeus)

Carolina Rail or Sora

Plate 26

Rallus carolinus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:153
Ortygometra carolina DeKay. Zool. N. Y. 1844. pt 2, p. 262, fig. 224
Porzana carolina A. O. U. Check List. Ed. 2. 1895. No. 214

porzā'na, Ital., name of the European spotted crane; *carolī'na*, of Carolina

Description. Upper parts *olive-brown*, the feathers with blackish centers; back and *scapulars streaked with white*; forepart of head, *chin and throat black*; sides of head and neck together with the *breast bluish gray*; wings dusky brown; the outer edge of first primary white; belly and under tail coverts white, the crissum tinged with rufous; sides and flanks barred with slaty black and white; bill light greenish yellow; legs greenish; iris brown. *Young: No black on face*, nor bluish slate on foreparts; throat and belly whitish; *neck and breast light olive-brownish*. *Chicks: Black*, with orange beard.

Range and migration. This species inhabits the nearctic region from about latitude 41 degrees, to Hudson bay and Slave lake, wintering from

Virginia, Missouri and California to South America. It is our most abundant species of Rail, being common in the marshes of central New York and the Great Lake region and probably breeding in nearly every county in the State, but is uncommon as a summer resident in our coastal district. It is an abundant transient visitant on the tidal marshes, as well as throughout the interior, but is undoubtedly less common than formerly on account of the

great slaughter by gunners, which attends its autumnal migration. Spring arrivals on the coast date from the 28th of April to the 9th of May as shown by Mr Dutcher's Notes. In western New York it arrives from the 20th to the 30th of April, and in Canandaigua, on one oc-



Sora. *Porzana carolina* (Linnaeus). Immature specimen in State Museum.
nat. size

casation, I heard its note on the 5th of April. On the 6th of March 1900, a Sora was picked up in the snow at Buffalo and brought to Mr Ottomar Reinecke. It was greatly emaciated and had probably been driven out of its course by the strong southwest wind which had prevailed for three days before its capture. This is one of many similar occurrences in the Eastern States. The Sora is commonest during September and early October, departing for the south from October 10th to the 30th, a few stragglers sometimes remaining until the marshes are entirely frozen.

The nest of the Sora is composed of coarse reeds and grasses which are piled up among the growing grasses until the top is a few inches above the water which usually covers the site selected to a depth of 2 or 3 inches.

The green tops of the grasses are gathered together and slightly interwoven above the nest, forming a loosely constructed arbor to shelter the eggs. If the water rises, additions are made from time to time until the structure is several inches in height. The old bird drags the wet or dead grasses from



Sora's nest and eggs

Photo by C. F. Stone

the marsh on to the nest by the same route so that there is frequently a well defined approach rising from the marsh to the summit of the nest. The nest is broad and flat, probably larger in proportion to the size of the bird than that of any other of our common species. The eggs are from 8 to 14 in number, larger sets which are sometimes found probably being the laying of two birds. The eggs are darker in color than the Virginia rail's, of a strong buffy drab ground-color and blunter at the small end, but spotted much like those of other rails. They average 1.22 x .9 inches.

Like other rails the young are covered with a jet-black down with a tuft of orange bristles on the throat and leave the nest soon after hatching. On several occasions, I have come upon a Sora's nest when the young were hatching and some were still wet from the shell, but even these would follow their mother from the nest and start to wade or swim off and hide amid the grass. It is an interesting sight when a Sora like a diminutive hen is sur-

prised leading her family of 12 or 14 downy black chicks along the sedgy bank of the stream.

In the fall soras feed largely on the seeds of grasses, especially the wild rice (*Zizania*) and become fat and well flavored. At this season Sora shooting is much practised on the New Jersey, Delaware and Chesapeake marshes, the gunners being poled at high tide through the flooded coverts. The birds are called rail-birds, sorees and ortolans, the last being the common restaurant name, simply because a Sora, like the Ortolan of Europe, is a small, delicious bird.

Mr Brewster gives the following account in *Bird-Lore*, 4, 2, 48:

In the more open, grassy stretches of meadow, as well as among the beds of cat-tail flags, but seldom, if ever, in thickets of bushes, we also hear, after the middle of April, mingling with the notes of the Virginia rails and the din of countless frogs, the love song of the Carolina rail, a sweet, plaintive *ér-e* given with a rising inflection and suggesting one of the "scatter calls" of the Quail. Such, at least, is its general effect at distances of from fifty to two or three hundred yards, but very near at hand it develops a somewhat harsh or strident quality and sounds more like *ká-e*, while at the extreme limits of ear range one of the syllables is lost and the other might be easily mistaken for the peep of a Pickering hyla. This note, repeated at short, regular intervals, many times in succession, is one of the most frequent as well as pleasing voices of the marsh in the early morning and just after sunset. It is also given intermittently at all hours of the day, especially in cloudy weather, while it is often continued, practically without cessation, through the entire night.

Equally characteristic of this season and even more attractive in quality is what has been termed the "whinny" of the Carolina rail. It consists of a dozen or fifteen short whistles as sweet and clear in tone as a silver bell, the first 8 or 10 uttered very rapidly in an evenly descending scale, the remaining ones more deliberately and in a uniform key. The whole series is often followed by a varying number of harsher, more drawling notes given at rather wide intervals. Although it is probable that the "whinny" is made by both sexes I have actually traced it only to the female. She uses it, apparently, chiefly as a call to her mate, but I have also repeatedly heard her give it just after I had left the immediate neighborhood of her nest, seemingly as an expression of triumph or rejoicing at the discovery that her eggs had not been molested. When especially anxious for their safety and circling close about the human intruder she often utters a low whinnying murmur closely resembling that which the muskrat makes while pursuing his mate and sometimes a *cut-cut-cutta* not unlike the song of the

Virginia rail, but decidedly less loud and vibrant. In addition to all these notes both sexes have a variety of short, sharp cries which they give when startled by any sudden noise.

Coturnicops noveboracensis (Gmelin)

Yellow Rail

Plate 26

Fulica noveboracensis Gmelin. Syst. Nat. 1788. Ed. 1. 2: 701
Ortygometra noveboracensis DeKay. Zool. N. Y. 1844. pt 2, p. 263, fig. 225
Porzana noveboracensis A. O. U. Check List. Ed. 2. 1895. No. 215

cotur'nicops, Lat. *coturnix*, quail; Gr. *ψ*, face, appearance; *noveboracēn'sis*,
of New York

Description. Upper parts striped with brownish yellow and blackish, and narrowly barred with white; head, neck and breast pale brownish yellow, or ocherous, shading to whitish on belly; flanks blackish, barred with white; "under tail coverts cinnamon"; *secondaries white*.

Length 6-7.5 inches; wing 3-3.6; tail 1.5; bill 50-60; tarsus .8-1; middle toe and claw 1-1.12.

Field marks. The small size and general yellowish hue of this bird distinguish it from the other rails. Some young soras are nearly yellowish brown in color of the foreparts, but the white markings of the back are lengthwise instead of transverse as in the Yellow rail. When the bird is flushed there is no possible chance of mistaking it as this species shows a conspicuous white patch in the wings formed by the white secondaries.

Distribution. The Yellow rail inhabits eastern North America, north to Nova Scotia, Hudson bay and Slave lake, wintering southward to Cuba. In this State it is chiefly a transient visitant, but its nest will probably be found within our borders. The nearest approach to a breeding record that I can find is a specimen in the State Museum, no. 283, labeled, "Brad-dock's bay, June, 1880." There is a winter record for Long Island in Mr Dutcher's collection, 1913—Sayville, January 17, 1894. From the records of 33 specimens taken in the State, 5 are without definite dates. Of the remaining 28, 15 were taken in October, 6 in September and 3 in April, with 1 record each for August, November, January and June. 11 of these specimens were taken on Long Island, 6 in the marshes bordering on Lake

Ontario, 9 near Buffalo, 6 on the central lakes—Canandaigua 4, Penn Yan 1, Oneida county 1—and 1 in Putnam county. Between September 20th and October 11th, 1907 Mr Hermann Grieb of Buffalo, N. Y., saw 12 or 15 of these birds at Rattlesnake island, Niagara river. During the three weeks while the birds were in the marsh, he saw them at every visit and collected five or six specimens. The others were flushed, but at such close range that they were not shot, but were easily identified by the white wing patches. Mr Todd in his *Birds of Erie*, pages 533-34, gives the migration dates as April 23 to May 3; and September 15 to October 29. It is evident that this is a regular migrant through our State and should be looked for about the first of May and the first of October.

Nuttall describes the note of the Yellow crane as "an abrupt, cackling cry 'kre^k, 'kre^k, 'kre^k, 'kre^k, 'ku^k, 'k 'kh.'" Mr J. H. Ames of Toronto describes its note as a scolding, *kik-kik-kik-kik-queah*. When much surprised his specimen uttered a longer call *kik-kik-kik-kik-kik-kik-kik-kik-ki-queah*, like the famous Kicker of the Massachusetts marshes [Auk, 19:94].

***Creciscus jamaicensis* (Gmelin)**

Little Black Rail

Plate 26

Rallus jamaicensis Gmelin. Syst. Nat. 1788. Ed. 1. 2:718

Porzana jamaicensis A. O. U. Check List. Ed. 2. 1895. No. 216

creciscus, Lat. *crex*, crane; *jamaicēn'sis*, of Jamaica

Description. Very small; head, neck and lower parts *dark slate color* becoming blackish on belly; hind neck and *foreback chestnut-brown*; the upper parts speckled and *finely barred with white*; flanks and lower belly barred with white. Length 5-6 inches; wing 2.75-3; tail 1.35; tarsus .80; bill .5.

The Little black rail inhabits temperate North America from the West Indies and western South America to Oregon, Illinois and Massachusetts. On account of its secretive habits, its migration and breeding range are imperfectly known. It seems to be an uncommon species in all parts of the United States and very few nests have ever been found. As it has bred in New Jersey, Connecticut and probably in Massachusetts there is little doubt that it breeds on Long Island and perhaps in the Hudson valley

and western New York. I can find records of only five specimens actually taken in New York State:

Penn Yan, Yates co., N. Y. Spring 1870. (John Gilbert). Birds of Cen. N. Y., p. 35

Watkins, Schuyler co., N. Y. Spring 1872. " " "

Jamaica, L. I. Spring 1879. R. B. Lawrence, N. O. C. Bul. 5: 117

Canarsie, L. I. Spring 1884. (C. Sargood). Forest and Stream, Aug. 7, 1884, p. 24;
also, Grinnell, Forest and Stream, Aug. 7, 1884, p. 24

South Oyster Bay, L. I. Aug. 1, 1884. (L. S. Foster). Forest and Stream, Aug. 7, 1884, p. 24

The Black rail has also been reported as seen at close range by Mr F. S. Webster, Watervliet, 1873; by Dr T. J. Wilson, May 30, 1874, on Seneca river, below Cayuga [Auburn Daily Advertiser, Sept. 3, 1887]; by Nathan L. Davis near Brockport, October 1892; and by the late David Bruce on two occasions at Lake Ontario, Monroe county.

The nest of this bird found in Connecticut contained nine eggs, creamy white, speckled all over with dots of rich reddish brown and a few heavier ones near the larger end. Dimensions about 1.05 x .8 inches.

The Black rail is even more difficult to flush and more mysterious in habits than the Yellow rail. Its note has been described by Mr March of Jamaica as *chi-chi-cro-croo-croo*, several times repeated in a sharp and high tone [Baird, Brewer and Ridgway, Water Birds, 1: 379]. The Kicker, whose notes are so fully described by Mr Brewster in the *Auk*, volume 18, pages 321-28, is supposed to be the Black rail, but may possibly refer to the Yellow rail whose notes are doubtless similar. The commonest Kicker notes are as follows: *Kik-kik-kik, quéeah; Kik-kik-kik, ki-quéeah; Kik-ki-ki-ki, ki-quéeah; Kic-kic, kic-kic, kic-kic, ki-quéeah.*

Crex crex (Linnaeus)

Corn Crane

Rallus crex Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 153

Crex crex A. O. U. Check List. Ed. 2. 1895. No. (217)

crex, Gr. κρέξ; Lat. *crex*, a crane, referring to the note

Description. *Wing coverts* above and below *chestnut*, or rusty brown; quills rufous brown; bill, eyes and legs pale brown. Otherwise, in size and color similar to an overgrown Sora.

Length 10 inches; wing 5.75; tail 2; tarsus 1.6; bill .9.

This palearctic species, the common Land-rail of Europe, is of casual occurrence in eastern North America. There are four New York records:

Oakdale, L. I. Nov. 2, 1880. Dutcher, Auk, 5: 177

Cohoes, N. Y. Nov. 6, 1883. Park, Auk, 2: 296

Amagansett, L. I. About Aug. 15, 1885. Dutcher, Auk, 3: 435

Montauk Point, L. I. About Nov. 1, 1888. Dutcher Collection, 1213. See Forest and Stream, Apr. 3, 1890.



Corn crane. *Crex crex* (Linnaeus). Albany county specimen
State Museum. $\frac{1}{2}$ nat. size

***Ionornis martinica* (Linnaeus)**

Purple Gallinule

Plate 27

Fulica martinica Linnaeus Syst. Nat. Ed. 12. 1766. 1: 259

Ionornis martinica A. O. U. Check List. 1895. No. 218

ionor'nis, Gr. *ion*, violet, *ōpis*, bird; *martl'nica*, of Martinique

Description. Head, neck and under parts *rich purplish blue*, becoming *bluish green on sides* and lining of wing, and blackish on belly; back and

wing coverts olive-green; under tail coverts white; legs yellow; *frontal plate bluish*; bill carmine tipped with yellow. *Young*: Duller, more brownish above, and whitish below. Size the same as young of Florida gallinules, but *middle toe shorter than tarsus*, and inner posterior surface of tarsus *scutellate*, and *nostrils oval*.

This is a species of tropical and lower austral America, wandering northward to Wisconsin, Ontario and Nova Scotia. According to Giraud it was extremely rare on Long Island 60 years ago, and DeKay puts it in the extralimital list. Mr Nicholas Pike, however, states that it was formerly plentiful on the island [see Dutcher, Auk, 10: 272]. There is a specimen from Indian pond, Flatbush, L. I., in the Collection of the Long Island Historical Society; and another in the State Museum, "obtained within the State" by J. G. Bell. Our latest record seems to be from Middle Island, L. I., summer of 1879 [Helme, O. & O., 7: 118].

Occasional reports of the Purple gallinule in New York which I have investigated prove to refer to high plumaged specimens of the following species. A reference to the plate will dispel any illusion with regard to the difference between the two species.

Gallinula galeata (Lichtenstein)

Florida Gallinule

Plate 27

Crex galeata Lichtenstein. Verz. Daubl. 1823. p. 80

Gallinula galeata DeKay. Zool. N. Y. 1844. pt 2, p. 264, fig. 234

A. O. U. Check List. Ed. 2. 1895. No. 219

gallī'nula, Lat. diminutive of *gallī'na*, hen; *galeā'ta*, Lat., helmeted

Description. Forehead with a broad horny plate, or shield, reaching backward and expanding from the base of the culmen; nostrils *slitlike*, near center of bill; tarsus *reticulate on its inner posterior edge*, otherwise scutellate; *middle toe longer than tarsus*. *Adult*: Head, neck and under parts dark bluish slate color, becoming whitish on the belly; back brownish olive; wing and tail feathers dusky; lateral under tail coverts, edge of wing and flank stripe white; tarsus and toes greenish; ring around tibia, frontal plate and most of bill red; eyes reddish brown. *Immature*: Colors duller; under parts whitish; bill and legs dull colored. *Downy chicks*: Black with silvery beards.

Length 12-14 inches; extent 20-23; wing 6.5-7.5; tail 3; tarsus 2.25; middle toe and claw 3; bill, including frontal shield, 1.7-1.85, from rear of nostril .80.

The Florida gallinule is a fairly common summer resident in the more extensive marshes of central and western New York and the Ontario-St Lawrence valley, but does not seem to occur except in a few places in the coastal district, or through the Hudson valley. It has recently been found to be a common breeder in the marshes of Newark, N. J., and Long Island City. In the Hudson-Champlain valley it is a neglected species, and records have been made only at Ossining, Highland Falls, Green Island, and Lake Bomoseen, Vt., but it is undoubtedly well established in all large marshes of that region. In the Montezuma marshes it reaches its greatest abundance in New York State, and hundreds of broods are annually reared, the greater portion of which are destroyed by gunners at the beginning of the shooting season.

The Florida gallinule arrives from the south from the 20th to the 30th of April and departs from the 15th to the 30th of October. Soon after arriving the birds pair and construct their nests amidst the dense growth of flags or marsh grass. It is a bulky structure composed of dead grass and flags. The eggs, which are deposited from May 25 to June 20, are from 8 to 14 in number of a buff or brownish white color, spotted and dyed with brown and neutral shell markings. They average 1.75 x 1.2 inches in size.

This is the common American gallinule, or Red-billed mud hen, of the gunners, which is responsible for the greater portion of the henlike notes heard from the dense coverts of the marshes. They are frequently seen swimming across the open spaces among the reeds, but do not live on the water as generally as the coots. Mr Brewster gives a fine description of their notes:

Like the rails they are given to skulking among the grass or flags but at morning and evening we occasionally see them swimming across pools or ditches, their brilliant scarlet bills and frontal shields flashing in the level beams of the rising or declining sun. They are noisy birds at this season and some of their cries are second only to those of the Bittern in strength and grotesqueness. One of their common-

est vocal performances is a loud and prolonged outcry consisting of a succession of henlike *cucks*, given rather slowly and at nearly regular intervals, and frequently ending with a harsh, drawling *kée-ar-r*, *krée-ar-r*. They have other calls so numerous, complex and variable that it is difficult to describe them briefly and at the same time adequately. Sometimes they give four or five loud, harsh screams very like those of a hen in the clutches of a hawk, but uttered more slowly and at wider intervals; sometimes a series of sounds closely resembling those of a brooding hen when disturbed, but sharper and louder, succeeded by a number of lower, more querulous cries intermingled with subdued clucking; occasionally something which sounds like *kr-r-r-r-r*, *kruck-kruck*, *krar-r*, *kb-kb-kb-kb-kea-kea*, delivered rapidly and falling in pitch towards the end. Shorter and more frequent utterances are a low *kloc-kloc*, or *kloc-kloc-kloc* and a single explosive *kup* very like the ejaculation of a startled frog. Nearly all these cries are loud and discordant and most of them are curiously henlike. [Bird-Lore 4, 2, 50].

***Fulica americana* Gmelin**

American Coot

Plate 27

Fulica americana Gmelin. Syst. Nat. 1788. Ed. 1. 2: 704
DeKay. Zool. N. Y. 1844. pt 2, p. 272, fig. 233
A. O. U. Check List. Ed. 2. 1895. No. 221

fū'lica, Lat., coot (from sooty color); *americā'na*, of America

Description. Under plumage very dense for aquatic life; *toes with large rounded flaps* or lobes on each joint; nostrils linear. General color *dark slate*, the head and neck nearly black, the back tinged with olive; marginal under tail coverts, edge of wing, and tips of secondaries white; feet olive-green; *bill whitish*, the frontal shield and spot near the tip deep reddish brown; eyes red.

Length 13-16 inches; extent 23-27; wing 7-8; tail 2; tarsus 2-2.2; middle toe and claw 3; bill, without frontal shield, 1.25-1.6; weight 16-20 ounces.

The Coot is a common transient visitant in the marshes of New York State but is much less common in the spring than during the fall migrations. It arrives from the 1st to the 20th of April and passes northward from the

1st to the 16th of May; a few remain to breed in the Montezuma marshes and about the eastern end of Lake Ontario. Some seasons quite a number of them are found; other years they seem to be entirely absent as summer residents. They also breed in the Newark marshes of New Jersey, and Mr Hendrickson thinks that they have bred in company with the gallinules at Long Island City. In fall, migrant coots begin to appear in numbers from the 15th to the 20th of September and the few which are not killed



Nest and eggs of American coot. (From *Bird-Lore*. Photo by Bent)

by our gunners disappear from the 1st to the 20th of November, occasional stragglers remaining well into December.

Coots swim as lightly and easily as ducks and are occasionally seen on the wide waters of our lakes and bays. They prefer the shallow lagoons, however, near the shelter of dense reeds and flags, whither they retreat when danger threatens them. When rising from the water they patter for a long distance on its surface until they have gained sufficient momentum to launch themselves in the air, when they fly off at a low elevation with legs stretched backward very much in the manner of rails and gallinules.

When in our waters the coots are usually silent birds, but sometimes utter a low *kluck*, and when gathered in numbers they engage in a confused gabbling and clattering.

The Coot's nest is a mass of flags and dead vegetation, but resembles the grebe's more than the gallinule's in location, being built up in the shallow water in a slight opening among the flags. The eggs are from 8 to 16 in number, of a buffy white, minutely and uniformly dotted with blackish brown and obscure tints, sometimes in larger blotches; average size 1.9 x 1.32 inches.

This is the Mud hen, Meadow hen, Water hen, Crow bill, Hen bill, Crow duck, Blue peter or White-billed mud hen of the gunners. Its flesh, though palatable, is inferior to that of the Sora and our better ducks.

Order LIMICOLAE

Plover, Snipe etc.

Order Charadriiformes, Sharpe's Hand-List

Small, or medium sized; bill with a soft skin covering more or less of the basal portion, grooved from the base to the hardened terminal portion; nostrils open slits in the membraneous basal portions; legs normally long and slender, and scutellate, at least in front; tibia usually bare for some distance; front toes, at least the middle and outer, usually connected at the base with a small web; hind toe smaller and elevated, or wanting; claws small, sharp and slightly curved; wings normally long, flat and pointed, the outer primaries longest, the inner secondaries elongated, giving the extended wing a V-shaped appearance; tail rather short, stiff, broad and rounded. Cervical vertebrae 15, cervico-dorsals 2, dorsals 5 to 6; palate schizognathous; nasals schizorhinal.

Most members of this order prefer the shore, mud flats, or open marshes, and feed on mollusks, crustaceans and insects in the mud or along the moist strand. They nest upon the ground. The eggs are usually four in number, well spotted or blotched with dark colors, which renders them quite inconspicuous among the grass or pebbles. The young are precocious and covered with a soft gray or buffy down marked with blackish, and lie quite flat and still when approached, to escape being seen by their enemies. Many of the species are gregarious in habit and perform extensive

migrations, probably surpassing all other orders in the development of the migratory instinct, several of our species breeding on the arctic islands and wintering on the plains of Patagonia. Their voices are mellow, piping, or whistling, and can be heard from a long distance. Their plumage is mottled or varied. They are prized as game birds, the Woodcock, Snipe, Golden plover and Upland plover being in high repute with sportsmen and epicures.

Family **PHALAROPIDAE***Phalaropes*

Small birds with dense, ducklike plumage, and lobate feet; tarsus compressed and serrulate behind; the lobes or toe margins scalloped in at the joints; hallux slightly lobed; bill as long, or longer, than head, grooved for three fourths or more of its length, rather hardened and pointed at the tip.

Phalaropes are good swimmers and are frequently seen far out at sea resting on the water like flocks of diminutive ducks. They often swim while feeding, whirling about in the shallow water to stir up the minute insects from the bottom, and seizing them as they are swept about in the little whirlpool thus created [Chapman]. The female Phalarope is larger and more brightly colored than the male. She does the courting and turns over the duties of incubation to the male. This reversal of Nature's usual order in reproductive habits is not confined to this family, but is also characteristic of the Painted snipe (*Rostratula*) of the Oriental, Ethiopian and neotropical regions, as well as of the Old World Hemipodes (*Turnicidae*).

Phalaropus fulicarius (Linnaeus)*Red Phalarope*

Plate 28

Tringa fulicaria Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 148*Phalaropus fulicarius* DeKay. Zool. N. Y. 1844. pt 2, p. 268, fig. 232*Cymophilus fulicarius* A. O. U. Check List. Ed. 2. 1895. No. 222*phala'ropus*, Gr. *φαλαρίς*, coot; *πούς*, foot; *fulicā'rius*, Lat. cootlike; *fulica*, Lat., a coot

Description. Bill depressed, broad and somewhat spatulate; feet semipalmate and broadly scallop-lobed. *Female in summer: Under parts*

and front and sides of neck dark reddish chestnut; sides of head white; top of head and feathers around base of bill sooty; upper parts blackish, the feathers broadly margined with tawny or buff; wings grayish brown, a broad band of white through the secondaries and tip of greater coverts; primaries blackish, the shafts white; bill yellowish tipped with dusky; feet yellowish; eyes dark. *Male*: Similar but much duller. *Winter plumage*: Light pearly gray above; head and under parts white; a dusky space about the eye, and blackish crescent on the back part of the crown; bill and feet mostly dusky. *Young*: Upper parts similar to summer male; under parts white tinged with buff on throat and breast.

Length 7.5-8.8 inches; extent 14.5-16; wing 5-5.5; tail 2.4-2.5; tarsus .75-.8; bill .8-.9.

This species is of holarctic distribution, breeding far north and migrating southward to temperate regions in winter. In New York it is rather uncommon. There are about 20 records of its occurrence, 8 of these being from the interior, as follows:

Flushing, L. I. Aug. about 1870. Robert Lawrence, N. O. C. Bul. 5: 117

Shinnecock bay, L. I. May 14, 1883. Dutcher, Auk, 1: 33

" Sept. 26, 1885. G. E. Payne, Auk, 3: 436

Montauk, L. I. Sept. 1886. Dutcher, Auk, 3: 134

" ♂ ♀. Oct. 22, 1888. Dutcher, Auk, 3: 134

Quogue, L. I. Dutcher, Auk, 3: 134; Giraud, Birds of Long Island, p. 245

Amityville, L. I. Nov. 28, 1888. (Chichester). Dutcher

Montauk, L. I. May 20, 1892. 2 ♀. (Scott). "

Montauk Light, L. I. Oct. 21, 1894. ♀. "

" Apr. 30, 1898. (2 ♂, 7 ♀). (Miller). Dutcher

Montauk Point Light, L. I. Nov. 27, 1902. Braislin, Auk, 21: 289

" Sept. 24, 1903. Braislin, Birds of Long Island, p. 57

Oneida Lake, N. Y. Oct. 4, 1889. Bagg, Auk, 7: 230

Niagara river, N. Y. Oct. 1892. James Savage, Auk, 12: 313

Buffalo, N. Y. ♀. Sept. 26, 1894. " " "

South Buffalo, N. Y. Oct. 31, 1896. James Savage

" Nov. 1897. "

Keuka lake, Yates co., N. Y. James Flahive Collection

Auburn, N. Y. (William Hopkins). Bost. Soc. Nat. Hist. Proc. 1856. 5: 13

Fourth lake, Herkimer co. Sept. 25, 1904. ♀. (Robert McPhail). E. H. Eaton Collection

Lobipes lobatus (Linnaeus)*Northern Phalarope*

Plate 20

Tringa lobata Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 148, 824
Lobipes hyperboreus DeKay. Zool. N. Y. 1844. pt 2, p. 269, fig. 203, 204
Phalaropus lobatus A. O. U. Check List. Ed. 2. 1895. No. 232

lobātus, Lat., lobed

Description. Bill short, slender, straight, compressed and pointed at the tip; legs short; tibia only slightly denuded; toes with scalloped membrane. *Female in summer:* Upper parts in general plumbeous, the back and scapulars with four *stripes of ocherous*, and the feathers of the back and wing coverts narrowly edged with white; *sides of the neck bright reddish chestnut*; throat and eyelids white; a white band in the wing formed by the white ends of the greater coverts; primaries blackish, the shafts white; tail dusky grayish, the outer feathers lighter and narrowly edged with whitish; upper tail coverts white and dusky; *under parts white, mixed with bluish gray on the breast and sides*; bill and feet black. *Male:* Showing similar pattern and colors, but much duller and the upper parts mixed with grayish brown; smaller than female. *Winter plumage:* *Upper parts light grayish*, the buffy stripes of summer replaced with whitish ones; *front and sides of head and neck, and under parts mostly white*; a dusky patch back of the eye, and the sides of neck washed with buffy where the red appears in summer.

Young: Upper parts blackish, edged with buffy, grayish on the back, scapulars and wing coverts; top of head and neck slaty; below white; sides of neck and breast tinged with light brownish; feet lighter.

Length 7-7.5 inches; extent 13.5; wing 4.15-4.5; tail 2; tarsus .78-.82; middle toe and claw .85; bill .8-.88. Smaller dimensions are of males.

The Northern, or Red-necked phalarope, is holarctic in distribution, breeding in high latitudes and migrating southward in winter to temperate and tropical regions. It is our commonest phalarope, occurring with considerable regularity both on the ocean and inland waters. New York specimens are as follows:

Rockaway, L. I. Aug. 24, 1874; Aug. 1875. Lawrence, Forest and Stream, 10: 235
 Troy, N. Y. av. F. S. Webster
 Keuka lake, N. Y. May 1874. Auburn List, p. 31
 Owasco Lake, N. Y. (Several). June 1877. Auburn List, p. 31
 Black river, Lewis co., N. Y. Sept. 6, 1877. Merriam, N. O. C. Bul. 3: 54
 Booneville, N. Y. About " " "

- Center Moriches, L. I. Aug. 20, 1879. Robert Lawrence, N. O. C. Bul. 5: 117
 Flushing, L. I. Sept. 29, 1879. (C. A. Willets). Lawrence, N. O. C. Bul. 5: 117;
 Auk, 6: 135
 Troy, N. Y. Sept. 4, 1881. T. B. Heimstreet
 Westmoreland, N. Y. Early spring 1881. Bagg
 Near Albany, N. Y. May 19, 1883. N. O. C. Bul. 8: 180, G. A. Lintner
 South Oyster Bay, L. I. May 24, 1883. Dutcher, Auk, 1: 33
 Fire Island Light, L. I. May 19, 1884. Dutcher, Auk, 3: 36
 Onondaga lake, Syracuse, N. Y. Sept. 2, 4, 25, 1886. Green, Auk, 4: 73
 Montauk Point Light, L. I. Sept. 3, 1886. Dutcher, N. O. C. Bul. 5: 117; Auk, 6: 135
 " May 5, 1888. 2 ♀. " " "
 " May 29, 1888. 3 ♂. " " "
 " Aug. 13, 1888. 2. " " "
 " Oct. 22, 1888. ♂. " " "
 Buffalo, N. Y. Oct. 1, 1889; Sept. 1894. James Savage
 Oneida Lake, N. Y. Sept. 21, 1889. Egbert Bagg
 Thomasville Mills, Lake Ontario, Orleans co. Sept. 19, 1891. David Bruce
 Montauk Point, L. I. May 1890. ♂. (Scott). Dutcher
 " May 22, 1892. ♀. " "
 " Aug. 26, 1892. (8). " "
 " May 5, 1894. ♀. " "
 " June 3, 1894. " "
 " Aug. 27, 1894. (2). " "
 Keuka lake, N. Y. May 16, 1895. ♂. C. F. Stone
 Cayuga marshes, N. Y. May. About 1895. ♂, ♀. (Parker). E. H. Eaton Collection

***Steganopus tricolor* Vieillot**

Wilson Phalarope

Plate 30

- Steganopus tricolor* Vieillot. Nouv. Dict. d'Hist. Nat. 1819. 32: 136
Holopodius wilsoni DeKay. Zool. N. Y. 1844. pt 2, p. 270, fig. 201-2
Phalaropus tricolor A. O. U. Check List. Ed. 2. 1895. No. 224

stega'nopus, Gr. στεγανόπους, webfoot; *tri'color*, Lat. tres, tria, three,
 and color, color

Description. Bill long, equaling tarsus, depressed, very slender, acute; legs long; tibia bare some distance; toes long, slender, fringed broadly and almost evenly. *Female in summer:* Lores, front and crown light ash turning to white on the back of the neck; throat, line over the eye and eyelids white; a velvety black band extending from the region of the eye halfway down the sides of the neck, then giving way to rich purplish chestnut or wine-red which continues down the sides of the back in narrowing stripes; a stripe of the same color on the scapulars; upper parts in general bluish

ash, paler on the rump; upper tail coverts and tail marbled white and grayish; *under parts white*, the foreneck and breast washed with vinaceous buff and the sides flushed with the same; bill and feet black; eyes brown. *Male*: Smaller; color pattern similar, but much duller than female, and browner above. *Winter plumage*: Above light grayish, the feathers edged narrowly with whitish; some scattered blackish feathers; lores, stripe on side of head, and whole under parts white. *Young before the winter molt*: Upper parts brownish black, the feathers margined with a rusty brown, resembling a Pectoral sandpiper; line over eye, upper tail coverts and under parts white, the breast tinged with rusty; feet yellowish.

Length 8.25-9.5 inches; extent 15-16; wing 4.75-5.32; tail 2.25; tarsus 1.33; middle toe and claw 1.12; bill 1.33. Smaller dimensions are of males. *Young*: Bill 1.1; tarsus 1.2.

The Wilson phalarope is a nearctic species, inhabiting the interior of the United States and Canada north to the Saskatchewan and Hudson bay, and wintering from Texas to Patagonia. New York lies out of the normal migration route of this species and it occurs only as an occasional transient as follows:

- Buffalo, N. Y. Very rare. DeKay, Zool. N. Y. 1844. 2: 270
 Long Island. Few occur. Giraud, Birds of Long Island. 1844. p. 247
 South Bay, L. I. L. I. Hist. Soc. Col. (3 specimens)
 Rockaway, L. I. Oct. 3, 1872. Lawrence, Forest and Stream, 10: 235
 Long Island, N. Y. Oct. 10, 1874. N. T. Lawrence, Auk, 2: 273
 Penn Yan, N. Y. (Gilbert). Birds Cent. N. Y., p. 30
 East river, N. Y. Oct. 15, 1879. N. T. Lawrence, Auk, 2: 273
 Murray, Orleans co., N. Y. Sept. 1882. David Bruce
 Shinnecock bay, L. I. Aug. 20, 1883. Dutcher, Auk, 1: 33
 Oneida Lake, N. Y. Oct. 6, 1883. (Barnum). Ralph & Bagg List, 112
 Western New York. Oc. in fall. Langille, Our Birds in their Haunts. 1884
 Atlanticville, Suffolk co. About Aug. 15, 1885. (G. W. Howell). Auk, 3: 436
 Onondaga lake, N. Y. Sept. 2, 1886. C. P. Moxon
 Moriches, L. I. June 1, 1887. Lawrence Collection, 3247
 Shinnecock bay, L. I. Sept. 13, 15, 1887. Dutcher, Auk, 5: 177
 Carmel, Putnam co., N. Y. About 1890. W. A. Mead
 Seaford, L. I. Fall 1890. (Wilson). Dutcher, Long Island Notes
 Ithaca, N. Y. Fall 1892. Juvenal. L. A. Fuertes Collection

Family **RECURVIROSTRIDAE**

Avocets

Bill lengthened, flattened, recurved and much attenuated and acute; legs very long, with hexagonal plates; front toes webbed; hind toes short and free; plumage thick and ducklike; wings rather short; tail short and square.

There are four or five species of avocets inhabiting the temperate regions, only one of which reaches North America. They are well adapted to wading and swimming, and when they get beyond their depth in water, continue on their course as if nothing had happened, in this respect being unlike all members of the order, with the exception of the phalaropes.

Recurvirostra americana Gmelin

American Avocet

Recurvirostra americana Gmelin. Syst. Nat. 1788. Ed. 1. 2: 693
DeKay. Zool. N. Y. pt 2, p. 266, fig. 227, 229
A. O. U. Check List. Ed. 2. 1895. No. 225

recurvirō'stra, Lat. *recurvus*, bent back or upward; *rostrum*, bill; *americā'na*, American

Description. *Breeding plumage:* Head and neck pale reddish brown or cinnamon fading to white below; back, lesser coverts and primaries black; rest of plumage white. *In winter and immature:* Similar, but head and neck white or grayish white. Bill recurved or bent upward, blackish; legs bluish; eyes dark.

Length 15.5–18 inches; extent 28–31; wing 8.75–10; tail 3.5; bill 3.75; tarsus 3.75.

The American avocet, or Bluestocking, was formerly an occasional visitor to the shores of Long Island and the Great Lakes, but now is purely accidental or entirely absent. The last authentic specimens from the State were obtained about 50 years ago on Long Island. Specimens from this locality without definite data are found in the State Museum, the Ameri-



American avocet. *Recurvirostra americana* Gmelin. From specimen in State Museum. $\frac{1}{4}$ nat. size

can Museum, and the Collection of the Long Island Historical Society [see Dutcher, Auk, 10: 272].

The bird is mostly an inhabitant of interior and western America from Texas to Saskatchewan, wintering from the gulf coast southward.

Family **HIMANTOPODIDAE**

Stilts

Body rather small, but the legs excessively lengthy; hind toe wanting; front toes semipalmate; bill slender, nearly straight, slightly curved upward, tapering, acute; wings long and pointed; plumage blackish and white.

There are seven or eight species of Stilts, inhabiting warm or temperate regions, but only one reaches the United States.

Coues says, "on the ground whether walking or wading, the bird moves gracefully, with measured steps; the long legs are much bent at each step (only at the joint, however), and planted firmly, perfectly straight; except under certain circumstances, as those Wilson narrates, there is nothing vacillating, feeble or unsteady, either in the attitudes or the movements of the birds. When feeding, the legs are bent backward with an acute angle at the heel joint to bring the body lower; the latter is tilted forward and downward over the center of equilibrium, where the feet rest, and the long neck and bill reach the rest of the distance to the ground."

Himantopus mexicanus (Müller)

Black-necked Stilt

Charadrius mexicanus Müller. Syst. Nat. Sup. 1776. p. 117

Himantopus nigricollis DeKay. Zool. N. Y. pt 2, p. 265, fig. 200

Himantopus mexicanus A. O. U. Check List. Ed. 2. 1895. No. 226

himăn'topus, Gr. *ἡμαντόπους*, strap-legged, crook-shanked; *mexicā'nus*,

Lat., Mexican

Description. *Adult male:* Black and white, the back of head and neck, upper back, and wings, black; tail gray; front of head and neck, lower back, rump, under parts, a spot before the eye, and another behind



Black-necked stilt, *Himantopus mexicanus* (Müller).
Long Island specimen, State Museum. About $\frac{1}{4}$ nat. size

it, white. *Female*: Browner above. *Immature*: The brown of the upper parts marked with whitish.

Length 13.5–15 inches; extent 26–28; wings 8.5–9; tail 3; bill 2; tarsus 4.15.

The Stilt, Longshanks, or Lawyer, is confined mostly to tropical, and interior or western austral America, rarely occurring at the present day north of Florida on the Atlantic coast, although it formerly bred as far north as New Jersey and possibly on Long Island. The latest New York specimens were taken 50 or 60 years ago on Long Island, some of which are now in the State Museum, the American Museum, and the collection of the Long Island Historical Society. Both this species and the

Avocet were of regular occurrence on our coast in 1840 according to Colonel Pike and Giraud [*see also* Dutcher, Auk, 10:272].

Family SCOLOPACIDAE

Snipe etc.

The true Snipes have a long bill, in Tringae however scarcely longer than the head, and its terminal portion sensitive; in Scolopacinae the legs are of moderate length and the tibiae not so extensively bare as in Totaninae; the latter also have the terminal portion of the bill hard, and the outer and middle toes joined by a web at the base, and the plumage mottled; the former are more or less striped.

Scolopax rusticola Linnaeus

European Woodcock

This species is *larger* than the American woodcock and much *grayer* in general color. The *under parts* are *finely barred or waved with dusky*. Length 13.5 inches; wing 8; bill 3.25.

This palearctic species has been taken in Rhode Island, New Jersey and Pennsylvania. Lawrence records a specimen from the vicinity of New York which was brought in by a gunner on a North river ferryboat. It is only accidental in eastern North America but may yet be taken in New York.

Philohela minor (Gmelin)*American Woodcock*

Plate 31

Scolopax minor Gmelin. Syst. Nat. 1788. Ed. 1. 2: 661*Rusticola minor* DeKay. Zool. N. Y. 1844. pt 2, p. 257, fig. 231*Philohela minor* A. O. U. Check List. Ed. 2. 1895. No. 228

philo'hela, Gr. φίλος, loving and ἔλος, bog; *minor*, Lat., smaller, i.e. than the European woodcock

Description. Head large; neck short; eyes large, set far back and high; bill very long, compressed, the upper mandible longer and the lower mandible fitted into it at the tip, its terminal portion corrugated, pitted, sensitive and voluntarily flexible and fingerlike; wings short and rounded, the first three primaries short, narrow and somewhat falciform; legs short, stout, feathered to the heel joint; toes entirely free; tail of 12 feathers; general build full and stocky. Upper parts intricately mottled and barred with rufous, buffy and black; the feathers edged with pale ashy, forming four broad stripes on the back and scapulars; front of head and sides of neck ashy washed with rufous; occiput black with three transverse bands of buffy; irregular line from bill to eye and another below the eye on sides of neck, black; eyelids buffy; under parts pale rufous, brighter on sides and under wing coverts; flight feathers ashy brown; tail feathers blackish tipped with ashy and their under surfaces with silvery white; under tail coverts also with white tips; bill light brown, pale at base; legs pale reddish or flesh color; iris brown.

Length ♂ 10-11, ♀ 11-12 inches; extent 17-19; wing 4.75-5.75; tail 2.2-2.5; bill 2.5-2.75; tarsus 1.2-1.4; middle toe and claw 1.5; weight, males 5-6 ounces; females 6-8 ounces, extra fat ones rarely 9 ounces.

Distribution. The Woodcock inhabits the eastern United States and Canada, north to Manitoba and southern Labrador, and westward to the plains, wintering in the southern half of its range. In New York it is a summer resident, and formerly nested commonly in every county of the State, but is now fast disappearing from the more inhabited districts on account of the incessant slaughter by gunners in the open season, and by telegraph wires at all seasons, the killing of its young by cats and other predatory animals, the draining of swamps, and the destruction of its favorite coverts. I have talked with gunners in western New York who killed as many as 180 brace of woodcock in one season 25 years ago, but

now have difficulty in securing 30 birds each fall; and I have little doubt that in the State as a whole we have no more than 1 Woodcock where there were 50 in 1860. Woodcock still breed sparingly in all parts of the State, and are fairly common on good grounds during a short period in October, when the northern birds are migrating, or, "coming in," as the sportsmen call it.

Migration. This species sometimes appears in southern New York as early as February 22, but usually arrives from the 10th to the 15th of March, and from one to two weeks later in the interior and northern districts. There are very few reliable data before me, most records of "first seen" being when nests with eggs were found. In the fall, northern woodcock arrive after the first sharp frosts in October, usually from the 1st to the 15th, and the last are seen from November 1st to 20th, although stragglers occasionally remain about warm springy places through December or even throughout the winter in the southern parts of the State.

Haunts and habits. The Woodcock is not by any means confined to swampy ground, but often seems to delight in wooded slopes and hilltops. Alder coverts along ponds and streams, rich bottom lands grown over with willow, soft maple, elder and dogwood, low-lying cornfields, hill slopes covered with low second growth of maple, hickory or oak, and the edges of wooded swamps are its favorite haunts. Thick coverts and a moist soil, well supplied with earth worms, are its delight. They do not thrive on "sour bottoms" or where the soil has been flooded so long that the worms are driven out. In upland coverts they often feed by searching under the leaves, or on the worms that come out at night, but also travel considerable distances at night to seek well known banquet grounds in the valley or along the streams. When camping on the uplands, and when journeying through the country at dusk, I have frequently seen woodcock darting past on their foraging excursions. They migrate and feed at night. During the day the Woodcock sits quietly amid its coverts, or stands sleepily at the edge of the swamp, or beside some path or opening in the woods, his head drawn down upon his "shoulders" and his bill pointing downward, appearing more like a ball of brown leaves attached to a slender stick, than

like a bird. If disturbed, he pops up, as if discharged from a catapult, to the tops of the bushes; then darts away in a horizontal course, and quickly drops again among the bushes. The Woodcock's flight is rapid and accompanied by a whistling, whirring sound, but not so resonant as that of the Grouse and Bobwhite. It lies well to the dog and when hunted rarely leaves the locality where it was startled. Thus the whole brood is often secured by the sportsman and none are left to repopulate the coverts. The woodcock's migratory habit has preserved it thus far from extermination, but it sorely needs the most efficient protection if it is to escape the fate of the Heath hen, Wild turkey, and Passenger pigeon.

Woodcock begin to breed from the 1st to the 10th of April, and the eggs are almost always laid before the 25th of that month. During the mating season and until the period of incubation is nearly finished, the cock performs his peculiar song and aerial evolutions during the early evening and often in the morning. Springing from the ground, he ascends in a spiral course, whistling or chippering or piping as he mounts in the air until a considerable height is reached when he sweeps about in wide circles and descends again, uttering all the while a mellow and rapidly increasing chipper, or warble, until the ground is reached, when he lowers his head and cocks his tail and utters a harsh, nasal *pêênk*, or *blaik*, accompanied with an uncouth waving motion of the body. Then he looks about expectantly and if his mate does not appear, the serenade is repeated, often as late as 9 or 10 o'clock in the evening.



Nest and eggs of woodcock. (From *Bird-Lore*).
Photo by Tabor

The Woodcock lays her eggs where there is a slight elevation of ground in the swamp, or in the midst of the woods. I have found the nest in Ontario county in dry oak and pine woods on hilltops at an elevation of 2000 feet, but usually the lowland woods are preferred. There is slight attempt at nest-building, the eggs being laid on the dry leaves, or a few dried grasses and bits of leaves drawn together for a bed. They are four in number, ovate in shape, of a buffy color spotted with reddish brown and purplish gray, and average 1.56 x 1.22 inches in dimensions. The young are covered with a rusty buff-colored down, marked above with deep chestnut, and follow their mother soon after hatching. Within two weeks they are able to fly a short distance, but usually escape their enemies by lying absolutely still among the brush and leaves. The old bird is deeply attached to her young and when they are disturbed flutters about the intruder uttering a pitiable whining sound and frantically endeavors to distract one's attention and lure him from the chicks. They also cling closely to their nests when incubating and will often allow themselves to be raised from the eggs with a stick or even by the hand rather than desert them. After a severe snowstorm in early April Mr Edward Reinecke of Buffalo found several nests of woodcock by tracking the hens over the snow and, noticing where they had sat down or scratched on the surface, he dug down and found the eggs buried under several inches of snow.

Gallinago delicata (Ord)

Wilson Snipe

Plate 32

Scolopax delicata Ord. Wilson's Ornithology. 1825. 9: 218

Scolopax wilsoni DeKay. Zool. N. Y. 1844. pt 2, p. 256

Gallinago delicata A. O. U. Check List. Ed. 2. 1895. No. 230

gallinā'go, Lat. (from *gallina*, a hen), henlike; *delicā'ta*, delicious

Description. Upper parts black, *striped and mottled with buffy whitish*; foreneck and *breast ochereous buff obscurely mottled with blackish*; throat and belly white; *sides and under wing coverts and axillars barred with black*; under tail coverts buffy marked with blackish; wings dusky. the coverts tipped or mottled with whitish, and outer edge of first primary white;

central tail feathers black with a broad subterminal bar of rufous, and tipped with whitish; outer tail feathers white, barred with blackish. Bill dusky or brownish, legs greenish olive; iris dark brown. Sexes similar, the female perhaps more ochreous on the breast and light markings.

Length 10.75-11.75 inches; extent 17.5-20; wing 4.9-5.2; tail 2.25; bill 2.3-2.7; tarsus 1.25; middle toe and claw 1.5; weight 4-5 ounces.

Field marks. The dark, striped back of the Snipe combined with its long bill (2.50 inches) and white belly can be seen by a quick eye as he springs from his grassy coverts in the swamp. His rapid zigzag flight and sharp, grating call of *scaipe, scaipe*, are also quite distinctive.

Distribution. The Wilson snipe breeds from Minnesota, Illinois, and southern New York north to Labrador and Hudson bay. In this State, however, it is neither a common nor regular breeder at the stations where its nest has been found, but would undoubtedly become a commoner breeder in such localities as the swamps of central New York and Lake Ontario if permanently relieved of spring shooting and disturbance of the nesting grounds. I have found it breeding at Springville, Canandaigua Outlet in Ontario county, and Bergen swamp; Mr C. F. Stone has taken its eggs at Branchport on two occasions; Mr E. R. Tabor found its downy young at Meridian; and reports of its nesting in Chautauqua, Genesee, Orleans, Onondaga, Oswego and St Lawrence counties have come to my attention. Throughout New York the Snipe is found as a regular migrant while passing to and from its more northern breeding grounds, being so common on the more extensive swamps of western New York, that 140 birds have been bagged by two guns in a single day. But this is an exceptional occurrence, and such reckless slaughter is suicidal to the interests of true sport, and has already resulted in a woeful depletion in the ranks of this fine game bird.

Migration. In the warmer parts of the State, the Snipe begins to arrive from the south as early as March 12th to 16th, if the spring is advanced, and rarely later than March 25th, and from one to two weeks later in the northern counties. They are commonest during the middle and later part of April in the swamps of Lake Ontario and the central lake country, and mostly pass on to the northward from the first to the tenth of May. In the

fall there is a noticeable movement of northern birds from the 1st to the 20th of September in western New York, and September 10th to 30th on Long Island. They remain in full force if undisturbed throughout October and well into November, the majority disappearing with the freezing of the swamps, although stragglers are found throughout the winter around warm springs in western New York, and on the tidal marshes of the coastal district.

Haunts and habits. The Wilson snipe, "Jack" snipe, or "English" snipe as gunners often call it, is a bird of the swamps, marshes, and boggy shores, but not in the dense flags and sedges where the rails hold sway, nor in the thick coverts which are the woodcock's delight. This bird prefers a sparse growth of grass, weeds or bushes where it can walk easily about thrusting and probing in the soft oozy soil for worms, grubs, soft roots and seeds which constitute its favorite food. When no enemy is near he walks nimbly, carrying the head and body erect with the bill pointing well downward, but often assumes more the attitude of a sandpiper and gleans from the surface especially when foraging along the shore of a lake or stream as he often does in the dusk of evening. When his foes appear he crouches so motionless that it is impossible to distinguish him among the grasses, and when too closely pressed springs suddenly into the air with a sharp grating call and makes rapidly off in a "rail-fence" course not far above the ground until well out of danger, when he mounts high in the air and circles about for a few minutes finally to pitch headlong into the swamp again, perhaps into the same position from which he was driven. In April and early May when snipe are nesting their curious aerial performance is one of the most interesting sounds of the marsh lands. It is usually heard in the evening or on cloudy days. The bird mounts high in the air, often five or six hundred feet, and circles around the swamp, occasionally sweeping obliquely downward with a quivering motion of the wings, producing a weird tremulous crescendo whistle, resembling somewhat the distant or muffled bleating of a kid, or the sound of an old-fashioned fan-mill, whence the notes have been known as the "bleating" or "winnowing" of the Snipe. The sound is evidently produced by air rushing

through the feathers of the rapidly vibrating wings, similarly to the winnowing of pigeons' wings as heard about the dovecote. When this winnowing of the Snipe is heard in the hush of a spring evening and without warning, directly above one's head, the effect is quite startling and impressive. In the breeding season the Snipe also has a mating call delivered as the bird flies in a direct line over the swamp at a low elevation, consisting of a succession of curious notes resembling the syllables "kuk, kuk, kuk, kuk, kuk" [Brewster]. I have heard this note often on the marshes of western New York, but have never observed the bird alight on a tree, as Brewster states, after uttering the call, but have seen it perch on a hummock or log after the performance.

The Wilson snipe lays her eggs, four in number, in the midst of the grassy swamp on a slight hummock, or a tussock of grass, in a nest composed of a few straws, leaves, or mosses. They are large, about 1.6 x 1.18 inches, of a clay color or greenish olive, with blotches of chocolate and obscure shell markings more heavy about the larger end. The chicks are covered with a dark down, striped with buffy.

Macrorhamphus griseus (Gmelin)

Dowitcher

Plates 33, 34

Scolopax grisea Gmelin. Syst. Nat. 1788. Ed. 1. pt 2, p. 658

Scolopax noveboracensis DeKay. Zool. N. Y. 1844. pt 2, p. 255

Macrorhamphus griseus A. O. U. Check List. Ed. 2. 1895. No. 231

macrorhām'phus, Gr. μακρός, long; ῥάμφος, beak; grī'seus, Lat., gray

Description. *Summer plumage:* Upper parts blackish edged, mottled or barred with dull buffy or cinnamon; *rump white*, V-marked with blackish; tail and its upper coverts barred with white and dusky; *under parts pale cinnamon* becoming white on belly, mottled and barred with blackish, except on belly; bill and legs greenish dusky. *Winter plumage:* *Brownish gray above*, the rump and tail as in summer; throat and breast pale ashy; *belly white*, sides barred with black.

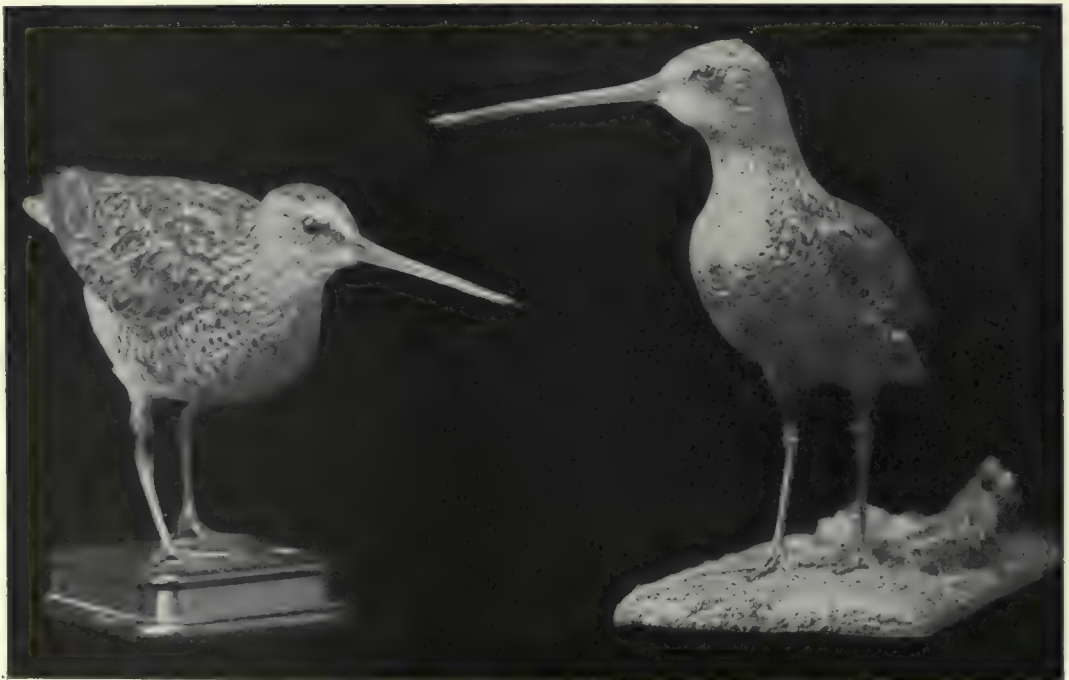
Length 10-11 inches; extent 17.5-19; wing 5.25-5.9; bill 2.05-2.55; tarsus 1.3-1.4; middle toe and claw 1.2.

Field marks. The Dowitcher resembles the Wilson snipe in size and shape, but has a *white rump* and is *less striped* on the back and *more buffy*

or rufous on the under parts. The white rump and barred tail combined with its size and the length of its bill serve to distinguish the Dowitcher from other shore birds. It is more gregarious than the Wilson snipe and also more of a beach bird.

Distribution and migration. The Dowitcher breeds in the arctic region of eastern North America and passes the winter from the gulf coast to South America. In New York it is chiefly confined to the shores of Long Island where it was formerly an abundant migrant, passing northward from the 25th of April, or the 9th of May, to the 30th of May, or the 12th of June, and returning to its winter quarters from July 12th or 20th, to September 8th or 15th.

It is now much less common than it was 20 years ago, due mostly to spring shooting and reckless slaughter by the gunners, who often destroy entire flocks that have bunched among their decoys, without leaving a



Dowitcher. *Macrorhamphus griseus* (Gmelin)

Long-billed dowitcher. *M. scolopaceus* (Say)

From specimens in State Museum and Forest, Fish and Game Commission collections. $\frac{2}{3}$ nat. size

single pair to return to the breeding grounds. On the inland waters of the State this bird is decidedly uncommon, but is taken occasionally along the Great Lakes and rarely on our rivers and smaller lakes, in May and early September.

The Dowitcher ("Deutscher" or "German" snipe to distinguish it from the "English" snipe), also called Red-breasted snipe, Robin snipe, Brown-back, Gray-back, and Quail snipe, is fully as gregarious as the Yellow-legs and often occurs in dense bunches over the bars and mud flats of Long Island. As they circle about the marshes, and often as they take wing when startled, they utter a tremulous whistle resembling considerably the notes of the Yellow-legs. Their flesh is less delicious than that of the Wilson snipe, and they also bear less resemblance to the true game birds since they are hunted from blinds by the use of decoys, and do not scatter or lie in cover before dogs like the common Snipe. The capture of dowitchers is more like slaughter and less like genuine sportsmanship.

Macrorhamphus scolopaceus (Say)

Long-billed Dowitcher

Limosa scolopacea Say. Long's Expedition. 1823. 2:170

Macrorhamphus scolopaceus A. O. U. Check List. Ed. 2. 1895. No. 232

scolopā'ceus, Lat., snipelike

Description. Very similar to the preceding species, but slightly *larger*, with *longer bill*. The under parts are also more rufous in the summer plumage, with the sides more heavily barred. In winter plumage the size and bill are the only distinguishing features.

Length 10.75–12.5 inches; extent 18–20.5; wing 5.45–6.5; bill 2.2–3.25; tarsus 1.3; middle toe and claw 1.2.

This species is chiefly confined to the arctic coast west of Hudson bay in the breeding season, and migrates mostly through the Mississippi valley and along the Pacific coast. On our shores, however, it is a regular migrant, according to Lawrence arriving at least a month earlier than *M. griseus*, in the spring often appearing by the 20th of March and passing northward in April. Mr Dutcher's Notes furnish dates ranging from July 16 to October

15, and November 30. Mr Savage records a specimen from Strawberry island, Niagara river, October 1892, but no others have been taken on our inland waters, as far as I know, although western New York lies nearer than Long Island to the usual migration route of the species.

Micropalama himantopus (Bonaparte)

Stilt Sandpiper

Plates 33, 34

Tringa himantopus Bonaparte. Ann. Lyc. N. Y. 1826. 2: 157
Hemipalma himantopus DeKay. Zool. N. Y. pt 2, p. 235, fig. 196
Micropalama himantopus A. O. U. Check List. Ed. 2. 1895. No. 233

micropa'lama, Gr. μικρός, small, παλάμη, a web; *himan'topus*, Gr. ὑμαντόπους, strap-legged, or crook-shanked

Description. Legs long and slender; toes webbed at base; bill long, slender, slightly curved. *Summer:* Upper parts black, margined and streaked with grayish and buffy or rufous; upper tail coverts barred with white and dusky; tail mingled white and ashy; wings grayish, primaries changing to fuscous and the secondaries edged with white; *ear coverts* and the *side* and *rear margins of the crown rufous*; under parts white, often washed with reddish, *extensively barred with fuscous*; bill and legs dusky greenish. *Winter:* Upper parts ashy gray, sometimes with traces of black and buff; under parts white, indistinctly streaked on the neck and breast with dusky and barred with black on the sides; tail and its upper coverts white, the former margined and the latter barred with ashy. *Young:* Similar, the upper parts usually dusky margined with buffy white; legs greenish yellow.

Length 8-9 inches; extent 16-17; wing 5-5.25; tail 2.25; bill 1.5-1.75; tarsus 1.6-1.75; middle toe and claw 1; tibia bare 1.

The Stilt sandpiper inhabits eastern America, breeding in the arctic regions and migrating in winter to the West Indies and South America. In New York this species is not as rare as has been generally supposed, probably being overlooked by gunners from its resemblance in fall to the Yellow-legs. Lawrence [N. O. C. Bul. 3:148] mentions it as common on the south side of Long Island from July to September. Mr Dutcher's Long Island Notes record about 150 specimens shot between 1882 and 1893 and many others seen, often in flocks ranging from 11-60 individuals, the dates ranging from July 12 to October 10. In the spring it is less common, or

entirely absent, his only record being May 18, 1885. Mr Todd, in his *Birds of Erie, Pa.*, mentions 17 specimens taken on Lake Erie between August 7-September 14, in the years 1893, 1895 and 1901. Few definite records from the interior of New York have come to my attention. One was taken at Penn Yan in October 1875 [*Birds Cent. N. Y.* p. 31], two in Saratoga county in 1893 [A. S. Brower], two near Buffalo, September 16, 1893 [Savage, *Auk*, 12:313] and one on Seneca river October 10, 1907 [Foster Parker].

Like the Yellow-legs, this species often wades in shallow water while feeding, when flushed it "darts swiftly away with a sharp tweet, tweet." [Gosse]

Tringa canutus Linnaeus

Knot

Plates 33, 34

Tringa canutus Linnaeus. *Syst. Nat.* Ed. 10. 1758. 1:149
DeKay. *Zool. N. Y.* 1844. pt 2, p. 243, fig. 194, 218
A. O. U. Check List. Ed. 2. 1895. No. 234.

tri'nga, Lat., sandpiper; *canu'tus*, pertaining to King Canute who is supposed to have been very fond of this bird

Description. A large stout sandpiper; bill longer than tarsus, straight, flattened and enlarged at tip; tibia bare about half the length of tarsus; tail nearly even. *Summer:* Upper parts brownish black, the feathers broadly edged and tipped with grayish white and rufous; tail ashy gray; *rump* and *upper tail coverts white barred with dusky white*; wings gray, primaries dusky; line over the eye and *under parts* in general *rufous* slightly marked with blackish on the sides; flanks and under tail coverts whitish marked with dusky; bill and legs greenish black. *Winter:* *Upper parts gray*; upper tail coverts white barred with dusky; *under parts white* marked with dusky on the breast and sides. *Immature:* Upper parts dark ash, feathers tipped with whitish, with a subterminal edging of blackish; under parts white, marked on the breast and sides with blackish.

Length 10-11 inches; extent 20-21; wing 6.5-6.75; tail 2.7; bill 1.3-1.4; tarsus 1.2; middle toe 1, tibia bare .6.

The Knot, Red-breasted sandpiper, Robin snipe, or Gray-back, breeds in the arctic regions of both hemispheres and migrates along our coast and inland waters, wintering from the gulf coast to South America. It is one of the best known beach birds on the south coast of Long Island, but like all the shore birds

is much less common than formerly. Although it appears in considerable numbers during the spring migrations, between the 15th of May and the 10th of June, it is far more common in the fall, arriving from the north July 15th to the 30th, and passing southward from the 10th to the 30th of October. There are few records comparatively, from the interior of the State. Mr Flahive has collected it near Penn Yan, Mr Bruce several on the shore of Lake Ontario, Mr Heimstreet one in May and one in September near Troy, Messrs Reinecke and Savage a few near Buffalo, and Mr Bagg reports it from Oneida lake. The dates for the inland records range from August 20th to October 15th. Mr Todd also records several specimens from Erie, Pa., dates ranging from August 27th to September 17th.

Knots feed both along the beach and the mud flats, often probing like other snipes for the small insects and crustaceans which are their principal food. Their note is a soft *wah-quoit*, usually heard when the birds are coming to the decoys, or a diminutive *honk*. They often bunch so closely like the dowitchers that the whole flock is sometimes destroyed while alighting among the decoys [Mackay, Auk, 1893. 10: 25-35].

Arquatella maritima (Brünnich)

Purple Sandpiper

Plate 34

Tringa maritima Brünnich. Orn. Borealis. 1764. p. 54
DeKay. Zool. N. Y. 1844. pt 2, p. 237, fig. 98
A. O. U. Check List. Ed. 2. 1895. No. 235

arquatē'lla, Lat. dim. of *arquata*, *arcuata*, bent or bowed; *marī'tima*,
Lat., maritime

Description. *Summer:* Upper parts varied with black, chestnut, buff, and whitish; under parts white streaked with dusky on the breast and clouded with dusky on the sides. *Winter:* Upper parts ashy or dusky gray, the feathers slightly margined with lighter and often with purplish reflections; wing coverts and inner secondaries edged with white; rump and middle tail feathers blackish; outer tail feathers ashy gray; lower neck, breast, and sides beneath the wings ashy; rest of under parts white; legs yellow or orange; bill yellow at base, greenish black toward the tip.

The Purple sandpiper, Rock sandpiper, or Winter snipe, is holarctic in distribution, breeding in the arctic regions and often wintering in high latitudes, but migrating regularly to the Middle States and casually to Florida. Though principally a maritime species, it occurs rarely on the Great Lakes and other inland waters. It prefers a rugged coast where the rocks covered with seaweed are exposed at low tide furnishing a bountiful supply of small aquatic animals which are its favorite food.

In Mr Dutcher's Long Island Notes we find about 25 records of this species on Long Island in the years 1880-93, the dates ranging from October 31st to March 5th. The number taken on each date varies from one to eight [*see also* Auk, 5: 178]. Mr Lawrence also records it from Rockaway, L. I., [Forest and Stream, 10: 235; *see also*, Berier N. O. C. Bul. 6: 126], Dr Braislin from Great South bay, L. I., November 23, 1899 [Auk, 19: 146], Mr Flahive from Seneca lake [Birds of Cen. N. Y. p. 32], Mr Bruce from Lake Ontario in the spring of 1883, Mr Burtch from Branchport, N. Y., September 14, 17, 1904, and Mr Webster from the Hudson, near Troy. It has also been taken at Toronto, Ont., November 3, 1900 [Ames, Auk, 18: 107], and in Ohio [Wheaton, Birds of Ohio, p. 476].

Pisobia maculata (Vieillot)

(*Actodromas maculata* on plate)

Pectoral Sandpiper

Plate 35

Tringa maculata Vieillot. Nouv. Dict. d'Hist. Nat. 1819. 34: 465
Tringa pectoralis DeKay. Zool. N. Y. 1844. pt 2, p. 242, fig. 193
Tringa maculata A. O. U. Check List. Ed. 2. 1895. No. 239

maculā'ta, Lat., spotted

Description. Bill nearly straight, about as long as head; tibia bare for a space about two thirds of the length of tarsus; tarsus equal to middle toe; *jugulum and breast conspicuously streaked*; tail doubly emarginate, central feathers longest. *Summer:* Upper parts black broadly margined with ocherous buff; rump and central tail coverts black; lateral tail coverts mostly white; primaries fuscous, the shaft of the outer one white; lateral tail feathers brownish gray slightly tipped and margined with white; *jugulum and breast streaked with dusky and dingy buff*; throat and belly white; bill

and legs dusky greenish, or ochery. *Winter:* Similar, but the ochereous buff of the upper parts largely replaced by rufous and whitish. *Young:* Similar, but less brightly marked.

Length 8-9.5 inches; extent 15-18; wing 4.75-5.7; tail 2.1-2.4; lengthening of central tail feathers about .35; tarsus 1-1.1; bill 1.1-1.2. The male is decidedly the larger.

This is the largest of our sandpipers of this genus with dusky and buff streaked breast and buffy or rufous edgings of the black feathers. Its breast is also more heavily streaked and its central tail feathers more elongated and pointed. Its note also which gives it the name of Krieker or Kreeker, is distinctive.

The Pectoral sandpiper, Grass snipe, or Kreeker, is a common migrant on all suitable marshes and mud flats in the State. It is more often found in meadows and flats with scattered cover than our other sandpipers, much resembling the Wilson snipe in this respect. Its grating whistle and habit of crouching in the grass and springing singly with zigzag flight when approached, also remind one of that bird. Its flesh compares quite favorably in flavor with that of the Snipe, and it is the smallest of our shore birds which I could consent to regard as legitimate game for the sportsman.

As might be expected from the habits of this bird, it is more generally distributed in the interior than the species which frequent the bars and bare shores, and is a common fall migrant along our lakes and rivers. In the spring it makes its appearance from the 22d of March to the 10th of April and is sometimes seen as late as the 26th of May. In the fall it is much more common, arriving from the 15th to the 30th of July, usually commonest during the month of September, and passes southward from the 20th of October to the 10th of November, stragglers sometimes occurring till the last of that month. It winters in the West Indies and South America and breeds in the arctic regions. The male inflates its throat and breast in the breeding season and utters a deep, resonant note [Nelson].

Pisobia fuscicollis (Vieillot)

(Actodromas fuscicollis on plate)

White-rumped Sandpiper

Plate 35

Tringa fuscicollis Vieillot. Nouv. Dict. d'Hist. Nat. 1819 34: 461*Tringa schinzi* DeKay. Zool. N. Y. 1844. pt 2, p. 241, fig. 191*Tringa fuscicollis* A. O. U. Check List. Ed. 2. 1895. No. 240*fuscicollis*, Lat, *fuscus*, dusky, and *collum*, neck

Description. A small sandpiper with the general appearance of *A. maculata*, but smaller and the *upper tail coverts white*, and the edgings of the upper parts more rufous, and the sides more distinctly streaked. *Winter plumage:* Upper parts plain ashy or *brownish gray*, often showing patches of the black and rufous of the summer plumage. *Young:* Resemble summer adults, but less distinctly marked, and the edgings of the upper feathers more rusty and whitish.

Length 6.75–8 inches; extent 15–16.5; wing 4.85–5; tail 1.8–1.9; tarsus .95–1; bill .9–1.

The White-rumped, Bonaparte, or Schinz sandpiper is a fairly common migrant in the fall on the coast of Long Island, arriving from July 4th to August 15th, and disappearing from the 1st to the 30th of October. On inland lakes and rivers it is less common, though a regular migrant in western New York. Eighteen specimens from the central lakes were taken on dates ranging from September 20th to November 4th; several from Lake Ontario between September 10 and October 16; one from Putnam county in October 1889 [Meade]; one from Albany county, October 25, 1884 [Parks]; one from Seneca river, October 13, 1906 [Fuertes]. Todd in his *Birds of Erie, Pa.*, records a number of specimens, the dates ranging from August 29 to October 23, and two were taken on June 4th, 1875, by Mr Sennett, which is the only spring record that I have seen for the vicinity of New York State.

This is a species of eastern America breeding within the arctic circle, and wintering from the West Indies to South America and the Falkland islands. It resembles the Pectoral sandpiper in habits, but is more often found on the sandy shore, in this respect and in the plain gray of its winter plumage and in the white of its rump suggesting a diminutive Knot. It is more gentle, however, and often allows one to approach within a few feet, but when startled dashes swiftly away with a sharp *weet, weet*.

Pisobia cooperi (Baird)*Cooper Sandpiper*

Similar to *P. fuscicollis* in color but ground-color of upper parts brownish gray, with only the least trace of ochreous on some of the scapulars, and upper tail coverts conspicuously varied with broad V-shaped marks of grayish dusky. Length 9.5 inches; wing 5.8; culmen 1.25; tarsus 1.2.

A single specimen of this bird was taken on Long Island, May 24, 1833, and is now in the Smithsonian Collection, United States National Museum. As no further specimens have appeared, it is believed that it may be a hybrid, or abnormal example of *P. maculata*.

Pisobia bairdi (Coues)

(Actodromas bairdi on plate)

Baird Sandpiper

Plate 35

Actodromas bairdi Coues. Acad. Nat. Sci. Phila. Proc. 1861. p. 194

Tringa bairdii A. O. U. Check List. Ed. 2. 1895. No. 241

bairdi, in honor of Spencer F. Baird

Description. Resembles *A. maculata* but *smaller* and the upper parts more fuscous and pale buff than black and ochreous buff, the *jugulum* and *breast* less heavily streaked. In winter the upper parts more buffy grayish brown with dusky centers and rounded whitish tips. Young of the first winter closely resemble young of *A. fuscicollis*: but the breast is tinged with buffy and upper parts paler; rump not white.

Length 7-7.6 inches; extent 15-15.6; wing 4.5-4.85; tail 2.25; tarsus .9-1; bill .9-1. Smaller than the smallest *maculata*.

The Baird sandpiper is a fairly common transient on the shores of the Great Lakes and the central chain, and is not rare on Long Island. It is a nearctic species, breeding in the arctic region and migrating through the interior of North America to Chili and Patagonia. It was overlooked by the early ornithologists, and can be recognized with certainty only when collected and carefully examined. The migration dates are as follows:

Rockaway, L. I.	(2 spec.).	Sept. 1872.	Lawrence, Forest and Stream, 10: 235
"	(1 spec.).	Aug. 26, 1873.	" "
"	(1 spec.).	Sept. 20, 1874.	" "
Long Island, N. Y.	1882.	N. O. C. Bul. 7: 133	
"	1885.	Auk, 2: 273	
Fair Haven, Cayuga co., N. Y.	O. & O.	1882. 7: 133	
Montauk, L. I.	Sept. 20, 1880.	Daniel E. Moran, N. O. C. Bul. 7: 60	
Far Rockaway, L. I.	Aug. 1882.	Lawrence, Auk, 2: 273	

- Locust Grove, Lewis co., N. Y. Aug. 11, 1885. H. W. Henshaw, Auk, 2: 384
 Mt Sinai harbor, L. I. ♂ and ♀. Sept. 2, 1887. (Helme). Dutcher
 Onondaga lake, N. Y. Aug. 27, 1888. Morris M. Green, Auk, 6: 68
 Moriches, L. I. Aug. 26, 1890. (Lewis). Dutcher
 Seaside Park, L. I. Sept. 29, 1894. H. H. Taylor, Auk, 12: 179
 Shinnecock bay, L. I. Oct. 31, 1894. Braislin, Auk, 16: 191
 Easthampton, L. I. Sept. 17, 1895. Vaughan, Auk, 13: 80
 Waterport, Orleans co., N. Y. Sept. 3, 1895. Posson, Auk, 16: 194
 Lakeside Park, Orleans co. Aug. 20, 1898; Sept. 8, 1898; Sept. 16, 1898. Posson, Auk,
 16: 194
 Canandaigua, N. Y. ♂. Nov. 20, 1895. E. H. Eaton
 " 2 ♂. Oct. 6, 1900. "
 Oneida Lake, N. Y. Sept. 4, 1897. Bagg, Auk, 17: 178
 Verona Beach. Sept. 5, 1899. " "
 Lake Ontario, Orleans co., N. Y. Sept. 8, 1898; Oct. 18, 1899. David Bruce
 Montauk, L. I. Aug. 14-17, 1907. (5). Braislin, Birds of Long Island, p. 60
 Rye Beach, N. H. Aug. 26, 1880. (2 spec.). Henry M. Spelman, N. O. C. Bul. 6: 61
 New Haven, Conn. Oct. 28, 1887; Oct. 19, 1889, ♂. Woodruff, Auk, 7: 89
 Erie, Pa. Sept. 5-29, 1900. "Moderately common." Todd, p. 540
 " Aug. 24, 1892; Sept. 16, 1893; Sept. 1, 7, 1894; Oct. 5, 1894; Oct. 3, 1895;
 Sept. 11, 1897; Aug. 22, 1902; Sept. 1, 5, 1902. (Bacon). Todd, p. 540

***Pisobia minutilla* (Vieillot)**

(*Actodromas minutilla* on plate)

Least Sandpiper

Plate 35

- Tringa minutilla* Vieillot. Nouv. Dict. d'Hist. Nat. 1819. 34: 452
Tringa pusilla DeKay. Zool. N. Y. 1844. pt 2, p. 244, fig. 207, 208
Tringa minutilla A. O. U. Check List. Ed. 2. 1895. No. 242

minutilla, Lat. diminutive of *minutus*, small

Description. *Our smallest sandpiper*, very similar to the Pectoral sandpiper in color, but brighter on the back in summer and less heavily streaked on the breast; in winter not so bright, the upper parts being plain brownish gray with dusky shaft streaks.

Length 5-6.75 inches; extent 11; wing 3.5-3.75; tail 1.75-2; tarsus .75; bill .75-.9.

The Least sandpiper, Little peep, or Oxeye, is a common migrant along our coast and inland waters. It contests with the Semipalmated sandpiper the place for greatest abundance among our shore birds, at least along the Long Island coast. On our inland lakes and rivers perhaps the Yellow-legs,

Pectoral sandpiper, and Red-backed sandpiper, are fully as abundant during the fall migration. In the spring it appears on Long Island from the 20th to the 30th of April and departs for the north from the 26th of May to the 12th of June. Return migration begins as early as the 4th of July and is well advanced by the 1st of August, the last birds departing from the 20th of September to the 7th of October. In western New York it arrives later in the spring, like other species of arctic shore birds, usually appearing for only a few days late in April, or in May, while hurrying northward. Fall dates range from July 20th to September 30th.

This species like the Pectoral sandpiper frequents both the sandy shore, mud flats and the grassy meadows, and is often called the Meadow oxeye by the Long Island gunners. Where it is not persecuted by hunters I have often seen it so unsuspicious that one was quite unable to "walk it up," the little fellows trotting along in front of the observer and gleaning, or probing, industriously for insects on every side. When flushed it darts away with characteristic snipelike flight, sometimes to alight within a short distance, at others to leave the locality entirely, uttering its mellow *peep*, *peep*, or *peet*, *peet*. Some consider the little Sand-peeps as legitimate game and shoot them by the dozens to be made into "peep-pies" which are famous delicacies in many localities along the coast, but for my part, after associating with the Little sandpipers, I am more content to eat chicken pies than to think how dozens of these harmless, interesting birds have been sacrificed for a single meal.

This species breeds from the Gulf of St Lawrence to the arctic regions, and winters from the gulf coast to South America.

***Pelidna alpina alpina* Linnaeus**

Dunlin

Tringa alpina Linnaeus. Syst. Nat. Ed. 10. 1858. 1: 149

A. O. U. Check List. Ed. 2. 1895. No. (243)

pelid'na, Gr. *πελιδνός*, livid; *alpī'na*, Lat., alpine

Description. *Smaller than subspecies pacifica. Bill shorter; tarsus about equal to middle toe and claw. In summer upper parts less brightly colored; and the blackish belly not strongly contrasted with the speckled or grayish breast. Length about 8 inches; bill, average 1.4; tarsus and middle toe 1.75.*

This palearctic subspecies is of accidental occurrence in Greenland, Hudson bay, Washington, D. C., and Long Island. The single specimen from this State was taken on Shinnecock bay, L. I., September 15, 1892, and identified by Mr F. M. Chapman [see Young, Auk, 10:78].

***Pelidna alpina sakhalina* (Vieillot)**

Red-backed Sandpiper

Plates 33, 34

Pelidna pacifica Coues. Acad. Nat. Sci. Phila. Proc. 1861. p. 189

Tringa cinclus DeKay. Zool. N. Y. 1844. pt 2, p. 240, fig. 192

Tringa alpina pacifica A. O. U. Check List. 1895. No. 152

Description. Bill slightly decurved toward the end, depressed, with slightly widened and sensitive tip; tarsus longer than middle toe and claw. *Summer:* Above, *bright rusty* or tawny, streaked or spotted with blackish; *belly covered* with a large patch of black, remainder of under parts white or grayish white, slightly marked on the breast and sides with dusky; tail and wings ashy gray; primaries dusky with light shafts; greater wing coverts tipped with white; bill and feet blackish. *Winter:* *Plain brownish gray above and white below* varied on the breast and sides with grayish. *Young:* Similar, but edged with rusty above, and streaked with dusky below.

Length 8-9.25 inches; wing 4.5-5; tail 2-2.35; bill 1.5-1.75; tarsus and middle toe 2.

Distribution and migration. This subspecies breeds in arctic America and winters from the gulf coast to South America. It is a common migrant on the salt marshes, beaches and mud flats of our coast, but is much more common in the fall. It arrives in the spring from the 1st to the 15th of April, and departs for the north from the 20th of May to the 6th of June. In the fall it arrives much later than our other common shore birds, usually appearing from the 1st to the 20th of September, is common during the first two weeks of October, and usually departs for the south from the 20th of October to the 15th of November, but is sometimes observed on the tide-washed flats throughout the winter. In the interior of New York it is also common in the fall along the Great Lakes and the marshes of the central lake country, appearing from the 20th of September to the 10th of October, sometimes arriving in great flocks with the first cold weather in October, and is often taken as late as the middle of November. In the spring it is a rare bird in western New York, but is sometimes observed between April 20th and May 25th.

The Red-backed sandpiper, Dunlin, Black-bellied sandpiper, Black-heart, Winter snipe or Purre, is well known to the bay men of Long Island. It usually occurs in flocks, sometimes of hundreds of individuals, which sweep along the coast or over the marshes like clouds, now showing the glistening white of their under parts, and now their leaden backs, as they swiftly wheel to come up the wind and alight on the muddy flats, to scatter immediately in search of the small worms, crustaceans, and insects which are hidden among the grasses or seaweed. On such occasions they keep up a contented, peeping chatter. When frightened, or flying, they utter a hoarse, grating note.

***Erolia ferruginea* (Brünnich)**

Curlew Sandpiper

Tringa ferruginea Brünnich. Orn. Borealis. 1764. p. 53
Tringa subarquata DeKay. Zool. N. Y. 1844. pt 2, p. 239, fig. 213
Tringa ferruginea A. O. U. Check List. Ed. 2. 1895. No. 244

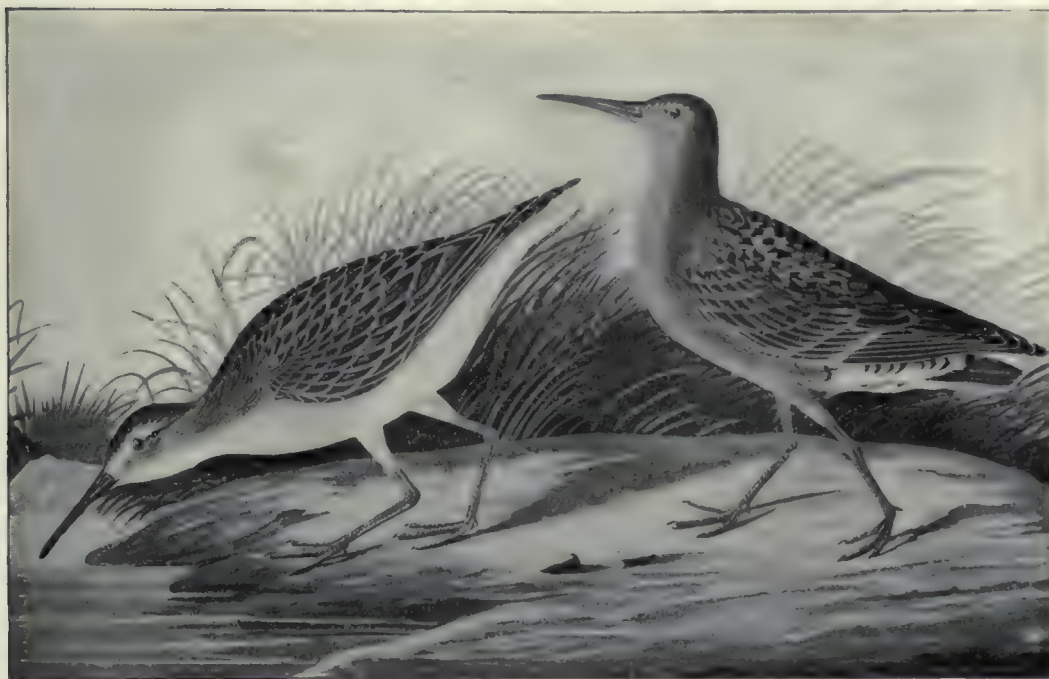
erol'ia, name given by Vieillot, meaning unknown to me; *ferrugi'nea*, Lat., rusty or reddish

Description. *Bill decurved beyond the middle*, slightly widened at the tip; tarsus longer than middle toe and claw. *Summer:* Upper parts rusty and blackish; *under parts cinnamon-rufous* or chestnut-red, slightly barred with dusky on the flanks and belly; *tail coverts white* barred with black. *Winter:* Upper parts ashy brown with dusky shaft streaks; under parts and upper tail coverts white, the breast streaked with gray.

Length 7-9 inches; wing 4.8-5.2; tarsus 1.2; tibia bare .7; bill 1.4-1.6.

This palearctic species is of rare occurrence in America. Audubon mentions a specimen from Long Island, and Giraud states that Mr Bell obtained seven or eight specimens in Fulton Market, New York, and mentions two or three others obtained there—"all of which were procured on the ever productive shores of Long Island." In Mr Dutcher's Collection there is a female taken May 24, 1883, on Shinnecock bay, L. I. [Auk, 1: 32-33], and another presumably from Long Island, which was sent to Mr Dutcher by mail, June 9, 1891.

The Curlew sandpiper associates with dunlins on the shores and mud flats, and in appearance resembles a diminutive Knot with a long decurved bill [Seebohm].



Curlew sandpiper. *Erolia ferruginea* (Brünnich). From Audubon, *Birds of America*. About $\frac{1}{2}$ nat. size

***Ereunetes pusillus* (Linnaeus)**

Semipalmated Sandpiper

Plate 35

Tringa pusilla Linnaeus. Syst. Nat. Ed. 12. 1766. 1:252

Heteropoda semipalmata DeKay. Zool. N. Y. 1844. pt 2, p. 236, fig. 195

Ereunetes pusilla A. O. U. Check List. Ed. 2. 1895. No. 246

ereunē'tes, Gr. ἑρευνητής, searcher or prober; *pusi'llus*, Lat. small

Description. *Toes with basal membrane*, that between the middle and outer extending to the second joint, and all the toes slightly margined; bill straight, much wider than in *Tringa minutilla* and enlarged at the tip; tail doubly emarginate. *Summer:* Coloration similar to the Least sandpiper in pattern, but the edgings of the upper feathers pale buffy cinnamon. *Winter:* Upper parts plain grayish with dark shaft streaks, breast mostly without streaks. *Young:* Marked with buffy and grayish white and the chest tinged with buffy.

Length 5.5-6.55 inches; extent 11.5-12.75; wing 3.25-3.95; tail 1.5-1.65; tarsus .85-.95; middle toe .55-.65; bill .66-.92.

This little Sandpiper is one of our commonest shore birds and still appears in large numbers during both spring and fall migrations on the beaches and mud flats of our seacoast and inland waters. The spring migrations begin from the 28th of April to the 8th of May and end from the 1st to the 13th of June. The return flight begins from the 4th to the 20th of July and continues until the 20th of September, and occasionally to the middle of October. On the central lakes I have sometimes observed it as late as the last of October and the 5th of November. This species winters from the gulf coast to South America and breeds in arctic America.

The Semipalmated sandpiper often associates with the Stint, or Least sandpiper, and both are known as peeps, or oxeyes, the present species often being called the Sand oxeye, and the former the Meadow oxeye, the names indicating a slight difference in the preferred haunts of the two species. They are as gregarious as dunlins and great clouds of peeps are often seen executing their aerial maneuvers over the shores and marshes. Like the lead-backs also they keep up a continuous peeping chatter of good fellowship as they run nimbly about the beach, searching for the small crustaceans, worms and insects upon which they feed.

Ereunetes mauri Cabanis

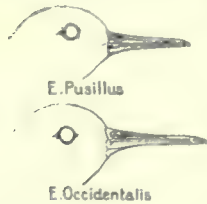
Western Sandpiper

Ereunetes mauri Cabanis. Journal of Orn. 1856. p. 419

Ereunetes occidentalis A. O. U. Check List. Ed. 2. 1895. No. 247

occidentā'lis, Lat., western

Description. *Bill longer* than in *E. pusillus*. In summer the *upper parts* are *much brighter* rusty or cinnamon and the breast more heavily marked with dusky than in the preceding species. In winter the dimensions must be relied upon.



Bills of Semipalmated and Western sandpipers. $\frac{1}{2}$ nat. size

Wing 3.6-3.9 inches; tarsus .85-.95; middle toe .55-.65; bill .85-1.15. The larger dimensions are of females as in the preceding species. While the length of the bill in females of *pusillus* equals or exceeds that of the smallest males of *mauri*, the dimensions of the same sex do not overlap, the bill of *pusillus* ♂ being .66-.75 and the ♀ .8-.92, while the bill of *mauri* ♂ .85-.95 and the ♀ 1-1.2.

This species is confined mostly to western North America, breeding on the arctic coast and wintering from the gulf coast to South America. During the migrations it occasionally appears in numbers on our shores, as in 1897, during July and August, when it was abundant on Long Island [Brislin, Auk, 16:191]. In Mr Dutcher's Long Island Notes, we find reference to four specimens taken by Mr Lawrence in Queens county, July 29, 1889, and in Mr Dutcher's Collection is a specimen taken at Point Rockaway, August 29, 1891, and three others taken at Rockaway by Mr Lawrence, July 17, 1893. I have never secured a specimen in western New York, but Mr Savage took it near Buffalo on the Canadian side in September 1897. If a close watch were kept among the Semipalmated sandpipers taken on our inland waters, this species would be detected occasionally.

Calidris leucophaea (Pallas)

(*Calidris alba* on plate)

Sanderling

Plates 33, 34

Tringa arenaria Linnaeus. Syst. Nat. Ed. 12. 1766. 1:251
Calidris arenaria DeKay. Zool. N. Y. 1844. pt 2, p. 245, fig. 205
 A. O. U. Check List. Ed. 2. 1895. No. 248

cali'dris, Gr. *καλιδρίς*; Lat. *calidris*, a beach bird; *leucophaea*, Gr. *λευκός*, light; *φαῖός*, dun, gray

Description. *Hind toe wanting*; front toes free but with narrow, finely scalloped margins; *inner primaries*, *secondaries* and greater *coverts*, and *tail feathers partly white*. *Summer*: Head, neck, breast and upper parts varied with rufous and black, tipped or frosted with whitish; belly, flanks and under tail coverts and under wings pure white. *Winter*: Upper parts pale ashy gray varied with blackish along the shaft lines; entire under parts immaculate white.

Length 7-8.75 inches; extent 15-16; wing 4.7-5; tail 2.25; tarsus .9-1.05; middle toe and claw .75; bill .95-1.

The Sanderling is undoubtedly the most widely ranging of our shore birds, breeding in the northernmost portion of the holarctic region and migrating southward in winter, reaching nearly all parts of the world in its wanderings. In this hemisphere it winters from the Middle States to

Patagonia. It is a common migrant, especially in the fall, along the coast of New York and the Great Lakes. On our smaller lakes and rivers it is much less common though by no means one of the rarest shore birds. The spring migrations on Long Island begin from the 15th to the 30th of March and end from the 1st to the 14th of June. By the 4th of July a few are already returning from the north and the migration is well under way by the 1st or 10th of August. They are usually found in numbers through September and October and a few are observed as late as November 20th and December 8th. Stragglers of this species like the Red-backed sandpiper are occasionally taken in midwinter on the coast of Long Island. In western New York the Sanderling is not often observed in spring, but sometimes occurs late in May when the southern birds are hurrying to their breeding grounds.

The Sanderling, or Surf snipe, is the whitest of all our sandpipers and our most characteristic beach bird. Even more than the Sand oxeye they prefer the sandy beaches, bars and flats which are washed by the waves, and are usually seen running in troops along the hard packed sand, advancing as each wave recedes and retreating as the next advances, gleaning the small mollusks, crustaceans and insects which are washed up on the shore. They are quite gregarious and numerous flocks circle up and down the beach at a low elevation, occasionally uttering their "slender and rather plaintive whistle." Late in the fall they become exceedingly fat and are usually regarded as a delicacy.

***Limosa fedoa* (Linnaeus)**

Marbled Godwit

Plate 37

Scolopax fedoa Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 146
Limosa fedoa DeKay. Zool. N. Y. 1844. pt 2, p. 252, fig. 238
 A. O. U. Check List. Ed. 2. 1895. No. 249

limō'sa, Lat., muddy; *fed'oa*, of unknown derivation

Description. *Large*; bill and legs long; *bill bent slightly upward* for its whole length; tarsi about twice as long as the middle toe; toes narrowly margined; tail short and even; *general color pale ochereous* or cinnamon or ochereous buff; head and upper parts streaked and barred with dusky

brownish. *Adult*: With dusky bars on the breast, sides and flanks. The young with immaculate under parts; legs dusky; bill dull flesh color, dusky toward the tip.

Length 16-22 inches; extent 30-40; wing 8.5-9; tail 3-4; tarsus 2.75-3; middle toe 1.4; bill 3.5-5.5. Female decidedly the larger.

The Marbled godwit, or Brown marlin, breeds from Nebraska to Saskatchewan, winters in the West Indies and Central America, and was formerly a regular spring and fall migrant on the shores of Long Island, but was not an abundant species even in the days of Giraud and Pike. It is now a rare visitant or straggler. The following are the only records for the past 30 years which have come to my notice:

Syracuse, N. Y. June 1876. (Howlett). Birds Cen. N. Y. 32
Shinnecock bay, L. I. Aug. 12, 1881; Sept. 1-8, 1883, (3); Aug. 25, 1885; Aug. 31, 1885, (3); Sept. 15, 1885. Dutcher, Auk, 3: 437
Atlanticville, L. I. Aug. 23, 1887; Aug. 27, 1887, (pr.); July 28, 1888. (W. M. Lawrence). Dutcher, Long Island Notes
Shinnecock, L. I. Aug. 31, 1887. (Perkins). Dutcher, Long Island Notes
Good Ground, L. I. Aug. 18, 1888. (Hendrickson). Braislin, Birds of Long Island, 1907. p. 61
Orleans co., N. Y. Oct. 1888. (W. F. Palmer). David Bruce, Notes
Albany, N. Y., Aug. 23, 1890. A. F. Parks
Niagara river, N. Y. Oct. 1891. James Savage, Notes

***Limosa haemastica* (Linnaeus)**

Hudsonian Godwit

Plate 37

Scolopax haemastica Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 147
Limosa hudsonica DeKay. Zool. N. Y. 1844. pt 2, p. 253, fig. 230
Limosa haemastica A. O. U. Check List. Ed. 2. 1895. No. 251

hæmas'tica, Gr. *αἱμαστικός*, bloody-red

Description. Much smaller than the Marbled godwit, but similar in shape. Upper *tail coverts white*, the lateral ones tipped with black; *tail black except the base and narrow tip which are white*; primaries blackish with white shafts and bases; axillars black. *Summer*: Head, neck and upper parts varied with blackish and pale chestnut and buffy; *under parts deep chestnut barred with dusky* and often tipped with whitish. *Winter*: Upper parts plain brownish gray; head, neck, and under parts dingy white or

buffy grayish. Young resemble summer adults above and winter adults below.

Length 14-16.75 inches; extent 25-28; wing 7.5-8.6; tail 3-3.5; tarsus 2.35-2.55; tibia bare 1; middle toe and claw 1.3; bill 2.75-3.5; weight 9-10 ounces. Female somewhat larger than the male.

The Hudsonian godwit, or Ring-tailed marlin, is a nearctic species breeding in arctic America, migrating southward through the Mississippi valley and along the Atlantic coast, and wintering in South America as far as Patagonia. It is more common than the Marbled godwit on the coast of Long Island and still occurs in small numbers during the migrations. In Dutcher's Long Island Notes I find about 25 definite migration dates ranging between August 8th and October 9th, during the years 1881 to 1893, the height of the migration season seeming to occur between August 23d and September 10th. On August 31st, 1903, a large flight occurred along the Long Island coast and many gunners killed a dozen or more of these birds [see Kobbe, Auk, 21: 79]. Dr Braislin also reports it from Quogue, L. I., September 23, 1896, and Rockaway, L. I., August 30, 1903 [Auk, 22: 167]. Our inland records are as follows:

Ithaca, N. Y. Nov. 5, 1878. (R. B. Hough). C. J. Pennock
Green Island, Albany co., N. Y. Oct. 24, 1882. A. F. Parks
Onondaga lake, N. Y. Oct. 13, 1883. A. W. Perrior
Lake Ontario, Orleans co., N. Y. Sept. 1890. David Bruce
Oneida Lake, N. Y. Sept. 7, Oct. 7, 1891. Bagg, Auk, 11: 163

Godwits, like the curlews and larger plovers, formerly migrated along the Atlantic coast in large flocks, but seldom appear in numbers unless driven to land by storms, which force them from their ocean course between Newfoundland and South America. At such times they appear on Cape Cod, Marthas Vineyard and eastern Long Island. Being fat from feeding on the small shellfish, berries, and tender roots which abound on the Labrador coast from which they came, they are highly prized by epicures. They are very shy but respond readily to an imitation of their whistle, or the cries of wounded companions, and when these flights occur they are taken in great numbers, which undoubtedly accounts for the decline of this species, as its nesting grounds are practically beyond the interference of man.

Totanus melanoleucus (Gmelin)*Greater Yellow-legs*

Plate 36

Scolopax melanoleuca Gmelin. Syst. Nat. 1788. Ed. 1. 2: 659
Totanus melanoleucus DeKay. Zool. N. Y. 1844. pt 2, p. 250, fig. 221
 A. O. U. Check List. Ed. 2. 1895. No. 254

tò'tanus, Ital. *totano*, a kind of snipe; *melanoleu'cus*, Gr. μέλως, black;
 λευκός, white

Description. Large; bill longer than head, bent very slightly upward from the middle, the nasal groove extending nearly half way to tip; legs very long; tarsus one and one half times the middle toe; *legs yellow*; bill black; *plumage blackish, white and grayish brown*; *rump and tail coverts white*, imperfectly barred; tail varying from white to gray, barred with dusky; primaries blackish, shaft of first white; flanks and under tail coverts barred with dusky; head and neck streaked with white and dusky. *Summer*: Upper parts varied with black, gray and white, the former quite prominent; under parts white spotted and barred with blackish, except on the belly. *Winter*: Upper parts brownish gray spotted with white and dusky on the edges of the feathers; under parts white, lightly streaked with grayish on the jugulum and breast.

Length 12.15-15 inches; extent 23-26; wing 7.5-7.85; tarsus 2.5-2.75; middle toe and claw 1.7; length from tip of bill to end of outstretched toes 16-18 inches; bill 2.2-2.3; weight 6-10 ounces.

Range and migration. This species breeds from Minnesota and the Gulf of St Lawrence through boreal America, and migrates southward both on the seacoast and through the interior, wintering from the gulf coast to Patagonia. With us it is a common migrant. The spring migrations begin from the 9th to the last of March or the 5th of April on the coast, and end from the 1st to the 5th of June, stragglers sometimes appearing as late as the 22d of June. The return movement begins from the 10th to the 25th of July, continues through August and September, and ends from the 20th of October to the 15th of November. Through the interior of the State this species rarely appears before the 12th of April, is most often seen during the latter part of April, but is occasionally observed throughout the month of May. Along the lakes the fall migration commonly begins about the middle of August and continues till late in

October. This species is well represented during the spring migration, but like most of our shore birds is more common in the autumn, and as it comes and stays later than the Lesser yellow-legs is often called the Winter yellow-legs.

The Greater yellow-legs, or Varied tattler, frequents both the sandy beach, the muddy banks of pools and streams, and the flooded marshes. It walks with easy carriage along the strand, or wades far out in the shallows, feeding on the small crustaceans and aquatic insects which lurk in the mud or among the aquatic plants, also on small fishes which I have sometimes taken in considerable numbers from its gullet and stomach. It is wilder and more suspicious than many of our shore birds, and, when approached, usually takes flight when well out of range, giving voice to its loud penetrating whistle which resembles the syllables *when-when-when*, *when-when*. These alarm notes are frequently repeated and immediately give notice to all the flats and marshes that the sportsman is abroad. This habit has given it the name of Telltale tattler in many localities. Its call note is often heard at night when the birds are migrating, and during the day I have listened to its notes coming from such an elevation that the birds themselves could not be distinguished as they passed over me on their southward journey. It is a common experience also when gunning on the marshes to hear the call of these birds from high in the air long before they appear, as they stoop from their lofty course to rest and feed for a time.

Yellow-legs sometimes gather in large flocks, but usually travel in small companies of six or seven birds, and do not bunch so closely as some shore birds when alighting among decoys, a fortunate circumstance, which, combined with its suspicious nature, is likely to prove the salvation of the species. In the fall they become very fat, and are esteemed by some as game, but to my palate its flesh is too strong in flavor, but this, as in other species, probably depends upon the food of the birds for some time previous to their capture.

Totanus flavipes (Gmelin)*Lesser Yellow-legs*

Plate 36

Scolopax flavipes Gmelin. Syst. Nat. 1788. Ed. 1. 2:659
Totanus flavipes DeKay. Zool. N. Y. 1844. pt 2, p. 248, fig. 212
 A. O. U. Check List. Ed. 2. 1895. No. 255

flavipes, Lat., yellow foot

Description. Essentially like the Greater yellow-legs in shape and color, but decidedly *smaller*, the tarsus proportionately longer, and the upper mandible grooved for more than half its length rather than less as in *melanoleucus*.

Length 9.5-11.5 inches; extent 19-21.5; wing 6.1-6.7; tarsus 2-2.15; middle toe and claw 1.25; tibia bare 1.25; bill 1.3-1.55; weight 3.5-5 ounces.

Distribution and migration. This nearctic species breeds from Minnesota to the arctic regions, and migrates southward, mostly in eastern America, to the gulf coast and Patagonia. DeKay, 1844, states that many remain to breed in New York, but this was probably a mistake which arose from the fact that the Yellow-legs is a late migrant in spring and begins to return from its breeding grounds early in July. I have seen only one record of its nesting in New York State which seems authentic, and this, of course, may be a case of wing tipped birds, as spring shooting was practised at that time. This was in 1891 when a pair reared their young near Phelps, N. Y. [see Bowdish, Auk, 8: 394].

The Yellow-legs is much less common in the spring than in the fall migrations. The few Long Island records range between May 6th and 26th. My only records for western New York lie between April 20th and May 30th. During the fall it is one of our commonest shore birds, appearing on Long Island from the 7th to the 23d of July, and departing for the south from September 13th to October 5th. Western New York dates range between July 12th and October 12th. It is usually commonest during August and early September.

Haunts and habits. The Yellow shanks, or Lesser yellow-legs, frequents the bars, mud flats and marshes which are exposed by the ebbing tide,

or left bare by the lowering waters of our lakes and rivers. Its habits are similar to those of the Greater yellow-legs, but in general it is less suspicious, travels in larger flocks and bunches more closely when coming to decoys. Giraud mentions an instance of 106 being killed by discharging both barrels into a flock which were sitting along the beach, and Audubon was present when 127 were killed by the discharge of three barrels. Is it any wonder that shore birds have diminished in numbers? During the summer of 1907 the water was unusually low in the Montezuma marshes and many mud flats and bars were exposed. Consequently shore birds were exceptionally numerous and flocks of two or three hundred yellow-legs were not uncommon and 20 or 30 were occasionally killed by a single shot.

The notes of this species resemble closely those of the Greater yellow-legs, but it is slightly more vociferous, uttering more notes in succession, commonly following the formula, *when, when-when-when-when, when-when, when*. The fat with which the body of the Yellow-legs is incased is strongly flavored and its flesh does not compare favorably with that of the Snipe and larger sandpipers, but it is eagerly sought after, like its larger representative, and is commonly served in city restaurants under the name of Snipe or Plover.

***Helodromas solitarius* (Wilson)**

Solitary Sandpiper

Plate 36

Tringa solitarius Wilson. Am. Orn. 1813. 7: 53, pl. 58, fig. 3
Totanus chloropygius DeKay. Zool. N. Y. 1844. pt 2, p. 249, fig. 210
Helodromas solitarius A. O. U. Check List. Ed. 2. 1895. No. 256

helō'dromas, Gr. ἑλος, marsh, δρομάς, running; *solitā'rius*, Lat., solitary

Description. Bill slender, about straight; upper mandible grooved for over half its length; tarsus about equal to middle toe and claw; outer tail coverts and *outer tail feathers white barred with dusky*; central coverts and central pair of tail feathers dusky, spotted on the edges with white; upper parts in general *dusky brownish*, somewhat glossed with dark greenish, streaked on the head and neck, and *spotted with whitish* on the back, scapulars and longer wing coverts; *wings dusky, contrasted abruptly with the white belly*; under parts white, the jugulum and upper breast and sides under the wings marked with dusky; axillars and under wing coverts white, barred

with dusky; legs dull greenish; bill blackish, lighter at the base. *Winter:* Similar but grayer above and less distinctly streaked with dusky on the foreneck. *Young:* Similar but with thicker speckles of dull buff above and the head more uniform grayish.

Length 7.5-9 inches; extent 15.5-17; wing 4.75-5.4; tail 2.25; tarsus 1.2-1.3; middle toe and claw 1.12-1.22; bill 1.12-1.25.

Range and migration. The Solitary sandpiper is a nearctic species representing the Green sandpiper (*Helodromas ochropus*) of the palearctic region. It breeds from the northern United States well into or through boreal America, and winters on the gulf coast and in tropical America. It is a fairly common migrant in all parts of New York State, being more generally distributed than any species of this order, with the exception of the Spotted sandpiper and Woodcock. On Long Island it appears between the 5th and 15th of May and passes northward from the 15th to the 28th of that month, returns from the 7th to the 20th of July and departs for the south from the 25th of September to the 14th of October. In western New York it arrives from April 25th to May 8th, passes northward from the 18th to the 30th of May, returns from the 12th to the 30th of July, and departs for the south from September 20th to October 12th. In northern New York this Sandpiper is supposed to be a summer resident and I have no doubt its nest will be found eventually in the Adirondack country. As yet, however, it is entered as a summer resident for northern New York on rather slender evidence. In Dr Merriam's Adirondack Notes, I have found no record of this species between May 30th and August 10th. Mr Pennock who has made several trips to the Adirondacks has no record between May 25th and August 6th. My own party, which spent the early summer of 1905 in the higher Adirondacks, failed to establish its presence beyond a doubt, although Mr Achilles was confident that he saw one specimen near Clear Pond on July 6th. No member of this order is more mysterious in its breeding habits, and many doubt all the records which have been accredited to the northern United States.

Haunts and habits. The Solitary sandpiper is even less gregarious than the Spotted sandpiper although five or six individuals are sometimes seen scattered about a swampy pool, or springy bog in the woods. Many a

time I have made my way cautiously to the margin of some old mill pond, or secluded lakelet in the forest, expecting to see Wood duck, Hooded mergansers, or herons, but found only a scattered troupe of Solitary sandpipers probing in the "spring moss" (*Chara foetida*), or wading quietly in the shallow water, or standing on water-soaked logs which projected above the surface of the pool. Some of them always seemed to be aware of my approach and silently nodded in their characteristic mechanical manner. They are silent birds and quite unsuspicious, rarely taking wing unless very closely approached. Sometimes when one member of the party is shot the others will not take wing, or, if so, will fly only a short distance, uttering a mellow whistle which suggests the bird's alliance with Yellow-legs, but is far more subdued and melodious. When alighting they have the habit, even more than other members of this family, of holding their long wings stretched upward almost vertically, displaying the striking pattern of the wing-markings and slowly folding them as their poise is gained and the search for food resumed.

Catoptrophorus semipalmatus (Gmelin)

Willet

Plate 38

Scolopax semipalmata Gmelin. Syst. Nat. 1788. Ed. 1. 2: 659
Totanus semipalmatus DeKay. Zool. N. Y. 1844. pt 2, p. 251, fig. 219
Symphemia semipalmata A. O. U. Check List. Ed. 2. 1895. No. 258

catoptrōphorus, Gr. *κατοπτρον*, mirror, and *φέρω*, *φορ*, to carry, referring to the mirrorlike wing patch; *semipalmātus*, Lat., half webbed

Description. Front toes webbed at the base; tarsus $1\frac{1}{2}$ times the middle toe; bill thick, slightly recurved, longer than head, the upper mandible grooved for about $\frac{1}{2}$ its length; end portion of wing feathers black, bases of the primaries and greater portion of secondaries white; axillars and longer under coverts black; lesser under coverts of the humerus and of the radius and ulna white; the wings thus showing striking black and white pattern when extended; tail grayish white; upper tail coverts mostly white, barred at the base with dusky. *Summer:* Upper parts varied with blackish and ashy; head and foreneck streaked, breast and sides barred with dusky; belly white. *Winter:* Upper parts plain ashy, or brownish gray; under parts white shaded with gray on the foreneck, breast and sides. *Young:*

Similar but tinged with buffy on the back and sides; legs bluish; bill blackish, rather bluish at the base.

Length 15-17 inches; extent 28; wing 7.5-8.25; tail 3; tarsus 1.95-2.6; middle toe and claw 1.65-1.7; bill 2-2.5.

The Willet inhabits the Atlantic States from Florida to southern New Jersey, and rarely to the coast of Maine. Its winter home is from the Southern States to Brazil. Formerly it may have bred on Long Island, but Giraud knew of no nest having been found, nor have any since been recorded. It hardly seems probable that all the willets which appear on Long Island during July, August and September are migrants from more northern breeding grounds, and the species undoubtedly journeys up the coast in search of fresh feeding grounds after the breeding season is over. These flights of willets, however, are comparatively rare in recent years. In Mr Dutcher's Long Island Notes, I find records of numerous flocks observed during the first two weeks in August 1884, 1885, 1886 and 1888. A few are sometimes observed as early as July 4th or 11th, but the flight rarely begins before July 25th; the last birds are usually seen from the 17th to the 25th of August, but sometimes as late as September 16th. There are few spring records in recent years, May 11, 1886; May 6, 1887; and April 29, 1890, being all that I find in Mr Dutcher's Notes. In the interior of New York this species was formerly a more or less regular visitant [*see* Birds Cen. N. Y. p. 33]. The following are the only records which I have since 1880:

Canandaigua, N. Y. Aug. 31, 1882. Dr M. S. Gooding
Lake Ontario, N. Y. Sept. 12, 1885. David Bruce
Chautauqua lake, N. Y. May 10, 1897. A. E. Kibbie
Erie, Pa. Apr. 24, 1902. (2). Todd, Birds of Erie, p. 542

The Willet, or Semipalmated tattler, can scarcely be mistaken for any of our other shore birds, its remarkable wing pattern and its loud whistle of *pilly-will-willet* establishing its identity beyond question at a great distance. It was formerly much sought by Long Island gunners, but Giraud remarked that its flesh though palatable was not considered so great a delicacy as its eggs.

Catoptrophorus semipalmatus inornatus Brewster*Western Willet*

Description. This western representative of the Willet is larger than the Atlantic coast bird, with a longer and more slender bill, and less heavily marked on the under parts in summer plumage. In winter plumage the dimensions are the only means of distinction. Wing 8-9 inches; tarsus 2.6-2.85; bill 2.25-2.75.

The Western willet has never been definitely recorded for New York, but may occur here, especially in the Great Lakes region.

Pavoncella pugnax (Linnaeus)*Ruff*

Tringa pugnax Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 145

Pavoncella pugnax A. O. U. Check List. Ed. 2. 1895. No. (260)

pavončěl'la, Lat. diminutive of *pavo*, peacock; *pug'nax*, Lat., pugnacious

Description. Bill nearly straight, grooved nearly to tip, rather broad; legs slender; tarsus $1\frac{1}{4}$ times middle toe; basal web between outer and middle toes, inner toe free; tail rather long, distinctly barred. *Male in breeding plumage:* Face without feathers, papillate; a long tuft of feathers extending backward on each side of head, foreneck also furnished with a broad ruff, the tufts and ruff being differently colored in nearly every specimen; general plumage varied with ash brown, black, ochreous and white. *Winter plumage:* Face feathered, tufts and ruff wanting; under parts pale buff; upper parts grayish brown with light markings. *Female:* Without ruff; upper parts grayish brown and dusky, pale buff below, much smaller than male.

Length 12-12.5 inches; wing 7-7.5; tail 2.6-3; tarsus 1.75-2; middle toe and claw 1.4; bill 1.5. ♀ length 10 inches; wing 6; tarsus 1.4; bill 1.15.

This palearctic species is accidental in eastern America, there being 24 or more records [see Dean, Auk, 22: 410; Palmer, Auk, 23: 98; Hardy, Auk, 25: 82]. Two specimens from Long Island are in the G. N. Lawrence Collection, American Museum of Natural History, a male taken in October 1851 [Lawrence, Lyc. Nat. Hist. N. Y. Ann. 5: 220] and a female taken May 15, 1868 [Chapman, Birds of Vicinity of N. Y. Ed. 2. p. 35]. Baird's statement that the Ruff has been "so frequently killed on Long Island," evidently refers to Lawrence's specimen, as I can find no evidence of any other records for New York.

Bartramia longicauda (Bechstein)*Bartramian Sandpiper*

Plate 38

Tringa longicauda Bechstein. Uebers. Lath. Ind. Orn. 1812. 2: 453
Totanus bartramius DeKay. Zool. N. Y. 1844. pt 2, p. 247, fig. 209
Bartramia longicauda A. O. U. Check List. Ed. 2. 1895. No. 261

bartra'mia, in honor of John Bartram; *longica'u'da*, Lat. *longus*, long; *cauda*, tail

Description. Bill rather shorter than head, much shorter than tarsus, equal to middle toe, upper mandible grooved for more than $\frac{3}{4}$ its length and slightly concave; gape wide, reaching below the eyes; tail long, graduated; tarsi much longer than middle toe and claw; outer and middle toes webbed at the base; inner toe free; neck and legs long; head small, pigeon- or plover-shaped; no decided sexual or seasonal changes in coloration. Above varied with blackish, ochereous buff and gray; primaries blackish, the outer one barred with white; tail feathers varying from grayish brown to buff and white at the base of the outer ones, all more or less barred with blackish; under parts white, varied on the foreneck, breast, and sides with blackish, and tinged with buff; legs light yellowish; bill yellowish at base and below, dusky toward the tip.

Field marks. The amateur may recognize this species by its general buffy brown color, as seen at a distance, its mellow bubbling flight whistle, and its preference for dry uplands, rather than the marshy shores.

Distribution and migration. The Bartramian sandpiper, or Upland plover as the sportsmen call it, is a summer resident of eastern Long Island and the plains of inland New York, especially in the counties of Erie, Niagara, Orleans, Monroe, Ontario, Oswego, Madison, Oneida, Lewis, Jefferson, St Lawrence, Clinton, and Rensselaer [see also, Distribution map, p. 20]. Although the species has been diminishing on Long Island, it is holding its own in northern and western New York, and certainly has increased on the plains of northern Erie county and western Monroe county during the last ten years. The spring migration begins from the 13th to the 20th of April and the breeding season is in late May, or early June. About the 20th of July, or even earlier, sometimes as early as the 4th, they gather in small flocks, which are probably augmented by migrants from farther north which continue to arrive until about the 10th of August. In western New York the last birds are usually seen about the 25th of August, a few some-

times remaining till the 10th of September, which are also the dates of its departure from Long Island. It is a nearctic species, breeding from Virginia and Kansas, to Nova Scotia and Alaska, and wintering in South America.

Haunts and habits. More than any other shore bird, this species, as its name of Upland plover signifies, is a bird of the dry fields and pastures, rarely visiting the shores or marshy lowlands. It seems to prefer dry rolling plains in western New York, especially waste fields, wide pastures, and even cultivated fields. On Long Island and the New England coast it occurs on the grassy sand plains, as well as the barren hilltops of New England. Mr H. L. Bowers writes, 1900, "they are very plentiful in the dry swamps west of Rome, during the summer. They nest in the timothy fields near by, but the old birds are never seen near the nest and will not leave their eggs till nearly stepped on. They arrive April 14th and nest in May." Mr George F. Guelf of Brockport writes, "they are common on the level fields which extend from 4 miles east of Clarkson, Monroe county, about 9 miles to the west, and lying about 1 mile north of the Ridge road." Mr E. H. Short of Chili says they are becoming commoner and extending their range, often nesting in cornfields, potato patches, and fallows. James Savage and Hermann Grieb state that it has grown commoner within the last 15 or 20 years in the vicinity of Buffalo and is rarely killed by the sportsmen, as it is practically impossible to get within shooting distance of the birds. The common experience of observers throughout the interior of New York is that very few Upland plovers are shot, the nature of the country making it practically impossible to hunt it on horseback or from wagons, as is often done on the western prairies. The chief enemies of the bird in western New York are certainly not the gunners, but wandering cats and other predacious animals, sheep and cattle which destroy its eggs, late plowing and the cultivating of fields.

This beautiful bird like most members of the Snipe family executes a peculiar performance in the mating season. The bird mounts high in air, or alights on a knoll, "a fence, or even a tree, and utters a prolonged mournful mellow whistle, more like the wind than like a bird's voice, which may be heard even in the night, and is one of the most weird and never to be

forgotten sounds in nature." [Langille] The same writer gives its alarm note as a rapid *quip-ip-ip-ip*, *quip-ip-ip-ip*, and the song as *chr-r-r-r-r-ee-e-e-e-e-e-oo-o-o-o-o-oo*. Will Richard, in describing a pair near Rouse Point, N. Y., states that they are called "Wet-weather" birds by the people of that locality from one of the calls which the bird utters, and writes the song as follows: *wh-o-e-e-et-et-e-e-e-e-e-o-o-o-ooo*. This is a good rendition of the weird whistle described by Langille, as I have heard it in western New York, the notes rapidly rising and swelling, then slowly falling and dying away into a hollow windlike whistle, very much like the literation of Mr Richard's description. This love song of the Upland plover, and the winnowing of the Snipe, and the flight song of the Woodcock are three of the most interesting sounds of our bird life, and belong to the three most highly prized game birds of the order Limicolae, all three of which fortunately breed within our limits, and should be protected in every possible manner from the extermination which has overtaken our Wild turkey, Heath hen, and Wild pigeon.

The food of the Bartramian sandpiper consists largely of grasshoppers, crickets, beetles and other insects, occasionally varied with seeds or small fruits. The young follow their parents as soon as hatched, and the old birds evince considerable distress when the young are molested, often fluttering along the ground, feigning lameness, or a broken wing, after the manner of a Killdeer, to draw the intruder away from the site. Their carriage is light and graceful, they run with great swiftness through the rows of stubble to escape from intrusion, or crouch motionless in the grass until the enemy is dangerously near, when they spring into the air and fly swiftly away, often passing entirely out of sight before alighting, but uttering a mellow whistle as they go, evidently to inform the members of their clan that the enemy is near.

The Bartramian sandpiper conceals its nest in the thick grass of the meadow, or under a tussock in the pasture or a waste field, and is rarely or never seen in its vicinity, and will not leave it until she is almost trod upon. Mr Short told me of finding a nest while plowing a field, which the

old bird refused to leave until his horses were standing over her and the plowshare was at the very point of burying her and her treasures in the earth. The nest is a mere depression lined with grasses and small stalks. The eggs are four in number, large and pyriform in shape, buffy white in color spotted with chocolate and reddish brown, more thickly about the larger end, the average dimensions being 1.75 x 1.3 inches. The downy young are buffy white tinged with rusty above and mottled with blackish; blackish spots below the eye, a small one on the lores and a large one behind the ear.

Tryngites subruficollis (Vieillot)

Buff-breasted Sandpiper

Plate 38

Tringa subruficollis Vieillot. Nouv. Dict. d'Hist. Nat. 1819. 34: 465
Tringa rufescens DeKay. Zool. N. Y. 1844. pt 2, p. 238, fig. 197
Tringites subruficollis A. O. U. Check List. Ed. 2. 1895. No. 262

tringi'tes, Gr. τρυγίτης, a sandpiper; *subruficollis*, Lat. *sub*, below, *rufus*, reddish, and *collum*, neck

Description. Bill shorter than head, slender, grooved nearly the whole length, hard at tip; gape extensive; tail rounded, the central feathers projecting; tarsus longer than middle toe and claw; toes cleft. *Primaries* grayish brown, darker toward the tips, their inner webs and the secondaries peculiarly *marbled with white*; central tail feathers greenish brown, darker toward the end, the others grayish or rufescent with subterminal black bar and buffy white tips; upper parts in general olive-brown broadly margined with yellowish brown, or ochereous, giving a prevailing tawny color; *under parts pale buff* slightly streaked or spotted on the sides of the breast; bill brownish black; legs yellowish. *Winter and immature:* Very similar but paler below.

Length 7-8.9 inches, average 8.5; extent 16-17; wing 5-5.5; tail 2.5; tarsus 1.15-1.3; middle toe and claw 1; bill .7-.8.

The Buff-breasted sandpiper is a nearctic species breeding in high latitudes, and wintering in South America. It is rather uncommon even in the Mississippi valley and is one of the rarer sandpipers on our Atlantic coast. Like the preceding species, it inhabits the dry prairies and sandy fields during migration and is rarely taken along the beach. The following

are the only records for New York during the last 50 years that have come to our notice:

- West Troy, N. Y. Aug. 27, 1861. (2). Thomas Heimstreet
 Penn Yan, N. Y. Oct. 15, 1874. James Flahive
 Montauk Point, L. I. Aug. 26, 1880. Berier, N. O. C. Bul. 6: 126
 Blissville, L. I. Sept. 16, 1881. (Hendrickson). Dutcher
 Kendall, N. Y. Apr. 20, 1884-85. Posson, Auk, 16: 194. David Bruce
 Lockport, N. Y. Aug. 31, 1886. Davison List
 Brockport, N. Y. Sept. 1886. David Bruce
 West Seneca, Erie co., N. Y. Aug. 1888. James H. Savage
 Mastic, Suffolk co., L. I. Aug. 28, 1888. Dutcher, Auk, 6: 136
 Long Island City, L. I. Sept. 17, 1889. W. F. Hendrickson
 Gaines, N. Y. Fall 1897. Posson, Auk, 16: 194
 Shinnecock bay, L. I. About 1870. (Nichols). Dutcher
 Rockaway, L. I. Aug. 25, 1873; Aug. 1874; Sept. 13, 1875; Sept. 1879; Lawrence,
 Forest and Stream, 10: 235
 Rockaway, L. I. Aug. 1888. (3). (Lawrence). Dutcher
 Queens co., L. I. Aug. 31, 1894. Howell. (Johnson). Braislin, Birds of Long Island, p. 63
 Rockaway Beach, L. I. Sept. 11, 1904. (Peavey). Braislin, Auk, 22: 169
 " Sept. 4, 1906. (Peavey). Braislin, Birds of Long Island, p. 63
 Cleveland, Ohio. Wheaton, Birds of Ohio, p. 491
 Ontario, near Lake Erie. Breeds. McIlwraith, Birds of Ontario. 1894. p. 156-57

Actitis macularia (Linnaeus)

Spotted Sandpiper

Plate 36

- Tringa macularia* Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 249
Totanus macularia DeKay. Zool. N. Y. 1844. pt 2, p. 246, fig. 206
Actitis macularia A. O. U. Check List. Ed. 2. 1895. No. 263

actī'tis, Gr. ἀκτίτης, dweller by the shore, or worker by the shore;
maculā'ria, Lat., spotted

Description. Bill straight, as long as head or tarsus or middle toe and claw; tibia bare for half the length of tarsus; outer and middle toes webbed to their first joint, inner toe free; tail rounded, half as long as wing; *upper parts grayish olive* with brassy luster, *spotted with dusky*—in streaks on the head and neck, in broken bars on the back; inner tail feathers like the back, outer ones whitish barred with dusky; a line over the eye white; *under parts white, profusely spotted with black*, the spots roundish, and heavier in the female than in the male; wing feathers dark brownish

with white bases, forming a lengthwise wing stripe which shows in flight; legs and base of bill flesh color, the latter blackish toward the tip. *Young:* Similar, but without spots, feathers above edged with buffy white.

Length 7-8 inches; extent 13-14; wing 3.8-4.5; tarsus .9-1.05; middle toe and claw .9-1.05; bill .9-1.05; weight 2 ounces. The female is larger than the male.

Distribution and migration. This is the nearctic representative of the palearctic species *hypoleucos*. It is found from Hudson bay and Alaska to South America, wintering from South Carolina to Brazil. In New York it is the most universally distributed member of the family, being common in every county in the State, from the 18th or the 30th of April to the 1st or 10th of September, rarely lingering in the southern portions till the middle of October. The birds of the interior of the State evidently come by way of the Mississippi valley, as they arrive from 7 to 10 days earlier in western New York than along the coast. They nest commonly along every stream, pond and lake in the State, except those lakes which are entirely wooded to the water's edge. Our party in 1905 found them breeding on Elk lake, Boreas pond and the Flowed Land near Mt Marcy in the Adirondacks; and every country boy is familiar with the tip-ups which nest near the creek in his pasture, or in the edge of the meadow. The eggs are laid from the 15th of May to the 20th of June.

Haunts and habits. During the nesting season the little Spotted sandpiper, Tip-up, or Teeter-tail, is found in the pastures, cultivated fields and meadows, sometimes at considerable distance from the water, as well as along the brooks and lake shores. During the mating season, the males strut about before the female swelling up the breast, in a manner somewhat suggestive of the Pectoral sandpiper, until they finally burst forth into the shrill pipe which is the more familiar accompaniment of their larklike flights, when they rise several feet in the air and at the close of the song drop into the meadow again. It is impossible for the Tip-up to stand or walk quietly, it keeps teetering or tilting its tail continually as it walks nimbly along the beach or stands on some stone, log, or fence post. When driven from one spot along the lake shore, or river bank, it flies out several rods over the water quite close to the surface, then turns up or down the stream and proceeds some distance before alighting. If disturbed again, the same operation is repeated

until it has been driven some distance from home, when it flies out farther and higher over the water and returns directly to the original spot from which it was startled. The flight of this Sandpiper is quite unlike that of the other members of the family, being performed by well measured wing beats, with the wings drooping below a horizontal line and both wings stroking in unison like the oars of a boat. Its call of *peet, weet*, which it commonly utters when startled, is similar in quality to the love song, but the latter



Spotted sandpiper's nest and eggs

Photo by Clarence F. Stone

is prolonged into a shrill, piping crescendo, uttered as before stated, both when the bird is puffing and strutting on the ground, or rising with upstretched neck and rigidly stroking wings over the nesting site. Its diet is almost wholly insectivorous and its interesting habits and confiding manner should commend it to the protection of man rather than relegate it to the list of game birds.

Nest and eggs. Its nest is usually concealed among the weeds or grass, two or three rods from the brook or lake shore, or under a tussock at the edge of the swamp or cornfield. As usual in this family there are only a

few dry grasses, leaves or weed stalks which form a lining in the slight hollow which contains the eggs. These are four in number, of a creamy buff color, spotted and blotched with chocolate and obscure shell markings, most thickly at the larger end. Average dimensions are 1.3 x 1 inches, or slightly less. The downy young are grayish above with a narrow black stripe from the bill down the neck and back, and a narrow black line on each side of the head through the eye; under parts whitish. They leave the nest soon after hatching and from the first teeter like their parents.

Numenius americanus Bechstein

(*Numenius longirostris* on plate)

Long-billed Curlew

Plate 37

Numenius americanus Bechstein, in Latham Allg. Ueb. Vögel. 1812.

4, 2, 432

Numenius longirostris DeKay. Zool. N. Y. 1844. pt 2, p. 232, fig. 216

A. O. U. Check List. Ed. 2. 1895. No. 264

numē'nius, Gr. *νομήνιος*, a kind of curlew, from *νομηνία*, the new moon, alluding to the crescent or sickle-shaped bill; *americanus*, Lat., American

Description. *Large; bill very long and curved*, upper mandible longer and slightly knobbed at the tip; toes webbed at the base; upper parts varied buffy or rufous and blackish, chiefly in streaks on head and neck, and broken bars on the back and wings; outer webs of the primaries blackish; under parts pale ochreous buff; legs dull bluish gray; bill yellowish flesh color at the base and below, blackish toward the tip.

Length 20-26 inches; extent 36-39; wing 10-12; tail 4; tarsus 2.75-3.5; bill 4-8.5 (young of the year only 2.3-3.5).

The Long-billed curlew, Big curlew, or Sickle-bill, breeds in the interior of America as far north as Manitoba and Saskatchewan and winters on the gulf coast and the West Indies. Sixty years ago it was plentiful on Long Island, according to Colonel Pike [Dutcher, Auk, 10:272], but is now only a rare or accidental visitor in New York. The following are our records for the last 35 years:

Far Rockaway, L. I. ♀. Aug. 20, 1873. N. T. Lawrence, Auk, 2: 273

Oneida Lake. Oct. 5, 1880. Ralph & Baggs List, 115

Far Rockaway, L. I. Aug. 26, 1885. N. T. Lawrence, Auk, 2: 273

Canandaigua, N. Y. Sept. 1885 or 1886. A. P. Wilbur

Shinnecock bay, L. I.	About Aug. 15, 1882.	Dutcher, L. I.	Notes
"	1883. (1). (Lane).	"	"
"	Aug. 1884.	"	"
Rockaway, L. I.	July 21, 1884.	"	"
Atlanticville, L. I.	Aug. 14, 1885.	"	"
Good Ground, L. I.	Aug. 5, 1887.	"	"
Atlanticville, L. I.	Aug. 23, 1887.	"	"
Rockaway, L. I.	July 29, 1889. (Several, Lawrence).	"	"
Montauk, L. I.	Sept. 9, 1889.	"	"

Numenius hudsonicus Latham*Hudsonian Curlew*

Plate 37

Numenius hudsonicus Latham. Index Ornithologicus. 1790. 2:712
 DeKay. Zool. N. Y. 1844. pt 2, p. 233, fig. 215
 A. O. U. Check List. Ed. 2. 1895. No. 265

hudsonicus, of Hudson bay

Description. Smaller than the Sickle-bill; bill about twice the length of the head; *top of head brownish black with a sharply defined median streak* of whitish; stripe on side of head from base of bill through the eye brownish black; upper parts varied with blackish and grayish white, or ocherous, the general tone being more grayish and less rufous than that of the Sickle-bill; *primaries* brownish black, *barred on the inner webs with buffy* or pale rufous; under parts grayish or buffy whitish; foreneck and breast streaked, and sides barred with dusky; legs and bill similar to the Sickle-bill's in color.

Length 16-18 inches; extent 31-33; wing 9-10; tail 3.5; tarsus 2.25-2.5; middle toe 1.4; bill 3-4.

The Hudsonian curlew, Jack curlew, or American whimbrel, is the nearctic representative of the palearctic species *phaeopus*. It breeds in the arctic region, and winters from the gulf coast of the United States to Patagonia, belonging to the troop of shore bird migrants, like the Golden plover and Hudsonian godwit, which perform the autumn migration along the Atlantic coast, often making the flight directly from Nova Scotia or Newfoundland to the coast of South America. When storms are encountered they often appear in numbers on Cape Cod, Nantucket, and Long Island, but some years are scarcely noticed along our coast. The fall migrations

on Long Island begin sometimes as early as the 2d of July, but usually from the 18th to the 25th, and the last birds are seen from the 16th to the 30th of September, the largest flights usually occurring between August 1st and September 10th. In the spring this species is rarely seen, but Mr Dutcher's Notes show that the migration occurs between the 6th and the 30th of May. In the interior of New York, the Jack curlew is less common than along the coast, the following being the definite records:

Brockport, N. Y. Oct. 10, 1880. (3). David Bruce
Union Springs, N. Y. 1882. R. B. Hough
Yates co., N. Y. May 1884. (13). Verdi Burtch
West Seneca, Erie co., N. Y. Aug. 24, 1889. James Savage
Lake Ontario, N. Y. Sept. 10, 1889. David Bruce
Branchport, N. Y. May 29-June 2, 1895. (5). C. F. Stone
Canandaigua, N. Y. May 30, 1897. (Several). Hallenbeck and Newman
Orleans co., N. Y. Sept. 1897. Posson, Auk, 16:195
Oneida Lake, N. Y. Sept. 5, 1899. Bagg, Auk, 17:177

In Giraud's day this species was less abundant than the Long-billed curlew on Long Island, but the reverse is now the case. In fact it is the only curlew that we have at the present day. It is easy to see why the Long-billed curlew diminished in numbers as its nesting grounds have been largely destroyed by the settlement of the west and northwest, but the present species, breeding practically beyond the disturbing influence of mankind, is likely to be preserved for many years to come.

The Jack, or Short-billed curlew, as the gunners call this bird, has an easy, steady flight, rarely soaring except when about to alight, or suddenly arrested by an imitation of its whistle. Like the Long-billed curlew, it exhibits much sympathy for wounded companions, often sacrificing its life by returning in answer to their cries. Its flesh is much inferior to that of the Eskimo curlew, being quite unpalatable, except in the fall when it has fed for some time on berries and grasshoppers.

When the amateur bird student first meets with this species, he is apt to believe he has seen a Long-billed curlew, its size and long bill, though much inferior to that species, being quite impressive when compared with our commoner shore birds.

Numenius borealis (Forster)*Eskimo Curlew*

Plate 37

Scolopax borealis Forster. Phil. Trans. 1772. 62: 411, 431
Numenius borealis DeKay. Zool. N. Y. 1844. pt 2, p. 234, fig. 214
A. O. U. Check List. Ed. 2. 1895. No. 266

boreā'lis, Lat., northern

Description. Much smaller than the other curlews; bill slender, slightly curved. Similar to the Hudsonian curlew in color, but with *no sharp central line on the crown* which is mottled with buffy; the *primaries without bars*; *breast markings V-shaped*.

Length 12-15 inches; extent 28; wing 8-8.75; tail 3; tarsus 1.7-1.85; middle toe 1; bill 2-2.5.

The Eskimo curlew, Dough-bird, or Fute, was formerly a regular fall migrant on Long Island and perhaps in western New York, nesting in the arctic regions, and wintering in South America as far as Patagonia. It was formerly abundant on the Labrador coast in autumn, and frequently made the journey to South America directly over the Atlantic, unless driven to land by storms. The spring migration was through the Mississippi valley where it abounded during the month of May. Many like Professor Cooke believe that this species is now practically extinct. If so it seems that this unfortunate fate has overtaken it because of its habit of bunching so closely during its migrations, that gunners, as well as unfavorable weather conditions, had exceptional opportunities to effect its destruction. It is more often found on the dry upland fields than the other curlews, and associates with the Golden plover and Upland plover, feeding on grasshoppers and other insects. In the fall it is extremely fond of the crowberry which grows in abundance in Labrador, and becomes fat and well-flavored. Dr T. B. Heimstreet of Troy, N. Y., writes that a few of this species associate with the Golden plover during the last week of August and the first two weeks of September, on the fields along the south bank of the St Lawrence river, not far from New York State, and are eagerly

pursued by sportsmen. All the New York records which I can find for the last 35 years are as follows:

- Otisco, N. Y. 1873. (2). Barnum, Birds of Onondaga Co. p. 26
 Far Rockaway, L. I. Sept. 12, 1875; Sept. 10, 1876; Sept. 26, 1884. N. T. Lawrence.
Auk, 2: 273
 Good Ground, L. I. Sept. 7, 11, 1885. (Perkins). Dutcher, L. I. Notes
 Long Island. Sept. 7, 1885. (Howell). Dutcher "
 Montauk Point, L. I. Sept. 11, 1886. (Scott). Dutcher "
 Queens co., L. I. Sept. 30, 1887. (Hendrickson). " "
 Good Ground, L. I. Sept. 13, 1889. (Perkins). " "
 Queens co., L. I. Sept. 11, 1889. " "
 " Sept. 12, 1889. (5). " "
 " Sept. 13, 1889. (Several). (Hendrickson) "
 Long Island. Sept. 15, 1889. (J. G. Scott) "
 Good Ground, L. I. Sept. 11, 1890. (Perkins) "
 Montauk, L. I. About Sept. 14, 1891. (Scott) "
 " Sept. 16, 1891. (12). (Scott) "
 Good Ground, L. I. Aug. 3, 1893. (1). (Perkins) "
 Lockport, N. Y. Oct. 2, 1879. (Louis Hill). J. L. Davison
 Oswego co., N. Y. tv, rare. Several times in 25 years. D. D. Stone
 Rensselaer co., N. Y. Once taken. tv. F. S. Webster
 Brockport, N. Y. May 8, 1887. David Bruce
 Cooper, Wyoming co., N. Y. About 1896. James H. Savage
 Canada, south bank St Lawrence river. Aug. 25-Sept. 15. Dr T. B. Heimstreet
 Near New York, a few

Numenius arquatus (Linnaeus)

European Curlew

Scolopax arquatus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 145
Numenius arquatus A. O. U. Check List. Ed. 2. 1895. Hypothetical List,
 No. 11, 1

arquātus, Lat., bent, or bowed, referring to the bill

This species resembles the Long-billed curlew in size and shape, but is of a *grayish*, rather than of a buffy or rufous color, and the *rump is white*.

A single specimen of this palearctic species was obtained on Long Island in 1853, and is now in the State Museum collection [see N. Y. State Mus. 7th Rep't, p. 17; also Marshall, *Auk*, 9:390]. This record was regarded by the A. O. U. committee as subject to some doubt, but Mr Dutcher and others who have examined the evidence regard the authenticity of the

specimen as fully established. Experts agree that the mount is from a fresh specimen and the taxidermist who had the bird and asserted that it was brought to him in the flesh did not know of its rarity. Its occurrence in America is, of course, purely accidental.



European curlew. *Numenius arquatus* (Linnaeus). Long Island specimen, State Museum.
 $\frac{1}{2}$ nat. size

Family CHARADRIIDAE

Plovers

Head, large, rounded; neck short; bill short for this order, being scarcely as long, or much shorter than the head, rather cylindrical and pigeon-shaped, being much compressed at the base and indented opposite the nostrils, and the hard terminal portion enlarged and convex and quite

distinct from the membranous portion; nasal groove short and wide, the nostrils appearing in it as an open slit; gape small; legs lengthened, tarsi longer than toes, mostly reticulate; middle and outer toes webbed at the base; hind toe usually wanting; wings long and pointed.

Plovers are birds of conspicuous black and white coloration, strong flight and whistling notes, sometimes mellow, sometimes piercing, but always far-reaching. They are somewhat gregarious in habits, but do not fly in such dense flocks as sandpipers. They run with ease and often indulge in peculiar antics especially at the breeding season. There are about 75 species of Plover distributed in all regions of the world, 8 of which are found in North America.

Vanellus vanellus (Linnaeus)

Lapwing

Tringa vanellus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 148

Vanellus vanellus A. O. U. Check List. Ed. 2. 1895. No. (269)

vanellus, Lat. diminutive of *vannus*, fan, alluding to the wing strokes

Description. Bill slender, shorter than head; legs long; middle and outer toes webbed at base, inner toe free, hind toe small; wings very long, rounded, second to fifth primaries longest; primaries broad, the first three or four narrowed toward the tip; secondaries long and wide; long *tapering recurved crest*; plumage of upper parts iridescent; *top and front of head, throat and forebreast black; sides of head and neck, under parts and most of tail white, the latter with broad, black terminal band*; upper parts iridescent green, passing to bluish black on the wing feathers; bill black; legs red. Female slightly duller with shorter crest.

Length 13 inches; wing 8.5-9; tail 4; tarsus 2; middle toe 1; bill 1.

This famous palearctic species is still common in Europe in spite of the hundreds of thousands of its eggs which are sent yearly from the lowlands of



Lapwing. *Vanellus vanellus* (Linnaeus). From specimen in State Museum. $\frac{1}{2}$ nat. size

Europe to the larger city markets. It is occasional in Greenland but on the American coast is purely accidental. There are two records for New York State, the first a specimen taken at Merrick, L. I., about Christmas time, in 1883 [see Dutcher, Auk, 3: 438]. The second was shot at Watermills, L. I., late in the fall of 1905 [see Beebe, Auk, 23: 221].

Squatarola squatarola (Linnaeus)

Black-bellied Plover

Plate 39

Tringa squatarola Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 149
Squatarola helvetica DeKay. Zool. N. Y. 1844. pt 2, p. 214, fig. 180
Charadrius squatarola A. O. U. Check List. Ed. 2. 1895. No. 270

squata'rola, Ital., name of this species

Description. *Hind toe present* but small; tibia and tarsus reticulate; a basal web between outer and middle toes. *Summer:* Upper parts varied with blackish and ashy white; forehead, sides of the head above the eye, sides of neck, and forebreast, lining of wings, lower belly and under tail coverts white; sides of head below the eye, *throat, foreneck, breast, belly and axillars black*; primaries blackish, central part of their shafts and bases of inner webs white; upper tail coverts mostly white; tail white barred with dusky; bill and legs blackish. Female similar, but duller. *Winter:* *Upper parts dusky, profusely speckled and edged with grayish white*; under parts whitish streaked or spotted with grayish brown on the foreneck, breast and sides; primaries, axillars and tail as in summer. *Young:* Similar, but spotted above with yellowish white.

Length 10.5-12.25 inches; extent 24-25; wing 7-7.5; tail 3; tarsus 2; middle toe and claw 1.33; tibia bare 1; bill 1-1.25.

Migration. This holarctic species breeds in high latitudes and migrates southward in winter to nearly all parts of the globe; in America wintering from Florida to Argentina. On Long Island it is a common transient visitant, arriving in spring from the 5th to the 15th of May, passing northward from the 1st to the 8th of June, and returning from the 12th to the 31st of July, leaves for the south from October 15th to November 10th. Along the Great Lakes and other inland waters, it is less common than along the coast, but is a regular migrant in the fall, appearing from the 20th of August to the 5th of September and disappearing from the 15th to the 30th

of October. There are few spring records for western New York, the flight passing rapidly over, about the last of May. On the first of June 1895, a large flock of these birds in company with turnstones, sanderlings and Semipalmated sandpipers, visited Canandaigua lake, and similar visitations are occasionally reported from Lakes Erie and Ontario.

The Black-bellied, Whistling, or Gray plover is well known to the gunners of the Long Island coast, who also call it Beetle-head and Bull-head plover. Though larger than the Golden plover, its flesh is inferior, probably from the fact that it frequents the muddy shores and feeds on marine insects, while the Golden plover is more often found in the dry fields, feeding on berries and grasshoppers. The plaintive whistle of this plover is often heard high in the air in migration time when the birds themselves are quite beyond vision. It is a louder, shriller whistle than that of the Golden plover, consisting of several notes, the second prolonged and receiving the greatest accent. They are shy birds, very difficult to approach, or to decoy within range. Their flight impresses one with the idea of strength and sufficiency. Time and distance seem of little account to this bird as he starts for fresh feeding grounds, or leaves the shores of Lake Ontario for his journey to Hudson bay.

Charadrius dominicus Müller

American Golden Plover

Plate 39

Charadrius dominicus Müller. Syst. Nat. Sup. 1776. p. 116

Charadrius virginianus DeKay. Zool. N. Y. 1844. pt 2, p. 213, fig. 178

Charadrius dominicus A. O. U. Check List. Ed. 2. 1895. No. 272

charā'drius, Lat., plover; *domi'nicus*, Lat., of St Domingo

Description. Bill rather short; legs moderate; wings long; no hind toe; legs reticulate with hexagonal scales. *Summer:* Upper parts black spotted and margined with golden yellow and whitish, most strongly on the crown and back; forehead, line on side of head above the eye extending down the neck and sides of breast white; entire under parts black; tail gray, barred with dusky; *axillars and lining of wings ashy*; primaries blackish, central parts of their shafts and basal part of inner webs white; bill black; legs dusky bluish. *Winter:* Upper parts fuscous, spotted and barred with

light yellow and whitish; under parts dingy whitish dimly barred with brownish gray.

Length 10-11 inches; extent 22-23; wing 6.85-7.4; tail 3; tarsus 1.75; middle toe and claw 1.2; bill .8-1.

Range and migration. This species breeds in arctic America and winters from the gulf coast to Patagonia, being a representative of the several shore birds which migrate down the Atlantic coast in autumn and return to their arctic breeding grounds by way of the Mississippi valley, undoubtedly as Professor Cooke believes, because the Labrador coast is teeming with food in the fall, but is icebound in the spring, while the reverse is true of the inland route. It is rare everywhere in New York during the spring migrations, but Giraud speaks of it as arriving on Long Island in the latter part of April. Langille, likewise writes of it as arriving in western New York the latter part of April and soon passing on to the north. The only authentic records for recent years, I find in Mr Dutcher's Notes; a single bird on Shinnecock bay, April 7, 1882, and 2 birds reported by Mr Hendrickson, May 10, 1885. During the fall it was, until recently, common locally on eastern Long Island as well as along the St Lawrence, Lake Champlain, Lake Ontario and Lake Erie, especially near the mouth of Niagara river on the plains some distance back from the lake, where it occurred in flocks of hundreds the latter part of August and early September and was killed in large numbers. It is evident from Mr Dutcher's Notes that as early as 1882 this species had greatly decreased in numbers on Long Island. In 1886 several observers reported flights on August 24 and 25, one observer seeing five flocks. In 1887 Mr Hendrickson reported 25 on September 12. On September 1st, 1888, a large flight was reported at Oakdale, L. I. [see *Forest and Stream*, 31. No. 8]. This flight was accompanied by a strong southwest wind. On September 9, 1889, Mr Perkins reported, "a big bunch of greenbacks going west very high." August 3d, 1893, several bunches of greenbacks were reported along the coast. These flights were often preceded by northeast winds. The fall migration begins from the 1st to the 10th of August, rarely as late as the 24th, and ends about the middle of October, a few remaining sometimes as late as November

12th. In the interior of New York the decline of the Golden plover is even more marked than on Long Island, but a few still occur each season, the migration beginning from the 20th of August to the 5th of September, and ending from the 15th to the 28th of October, or rarely the 8th of November.

The Golden plover, Green-back, or Frost bird, is one of our most highly prized game birds. After the first sharp frost of autumn they usually occur in the greatest numbers, being fat and well-flavored from a continued diet of berries and grasshoppers. In a rolling country they can be stalked by the sportsmen, but along the coast are usually shot over decoys, often responding easily to an imitation of their whistle. When a flock is approaching the decoys, all the birds seem to be whistling at the same time, their note resembling the syllables, *coodle, coodle, coodle* [Mackay, *Auk*, 8:17-24]. On the feeding grounds they run rapidly in quest of food, suddenly stopping after a short run, in the manner of plovers in general, and stand erect in graceful pose. When flying from one part of the field to another they utter their mellow whistling note and alight with upstretched wings to scatter immediately in further search for food.

***Oxyechus vociferus* (Linnaeus)**

Killdeer Plover

Plate 39

Charadrius vociferus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:150
DeKay. Zool. N. Y. 1844. pt 2, p. 212, fig. 181
Aegialitis vocifera A. O. U. Check List. Ed. 2. 1895. No. 273

oxye'chus, Gr. ὀξύς, sharp-sounding, of high notes; *voci'ferus*, Lat., noisy, vociferous

Description. Wings long; tail long, rounded; bill slender; black band encircling the base of the neck, broadest in front, another below this across the breast separated from it by white or buffy white; a blackish stripe extending back from the sides of the bill below the eye; a black band from one eye over the front of the crown to the other eye, separating this from the base of the bill a white frontlet; throat white extending as a half collar around the back of the neck; a space behind the eyes white changing to buffy; thus when the bird is facing the observer, it presents *four black bands separated by white*; top of head and upper parts grayish brown; *rump*,

upper tail coverts, central portion of lateral tail feathers, and tip of central tail feathers *pale rufous*, or ochreous buff; central tail feathers and sub-terminal zone of lateral feathers blackish; lateral tail feathers largely tipped with white and the outside pair white on the basal half, with three or four dusky bars on the inner webs; under parts and lining of wings pure white; wing feathers dusky with their central portions largely white, running further back on the secondaries, thus forming a *conspicuous angular white wing stripe*; bill black; feet dull flesh color; eyelids orange-red. *Immature*: Similar but duller, and edged with rusty on the upper parts.

Length 9-11.5 inches; extent 19-21; wing 6-6.75; tail 3.5-4; tarsus 1.4-1.5; tibia bare .8; middle toe and claw 1.12; bill .7-9.



Young Killdeer hiding

Photo by Guy A. Bailey

Range and migration. The Killdeer plover inhabits temperate America as far north as Manitoba and Newfoundland, wintering from the Middle States to the West Indies and northern South America. It is a common summer resident in the interior of New York State, especially in the western and central parts. In the lower Hudson valley it is practically unknown as a summer resident, and on Long Island it is very rare, though apparently not unusual in Giraud's time. As a migrant it is fairly common in some seasons on Long Island and in eastern New York, appearing from the

1st to the 15th of March, usually passing north from the 15th to the 30th of May, returning from the 10th to the 30th of July, and departing from the 1st to the 15th of November, rarely lingering into December or later. In western New York it arrives from the 4th to the 20th of March and departs about the last of October.

Habits. The Killdeer, or Killdeer plover, is well known throughout the country which drains into the Great Lakes, inhabiting the pastures, newly plowed fields, and the shores of our lakes and streams. Its nest is usually farther from water than that of the Spotted sandpiper and is often found on upland fields, or pastures, a long distance from any stream. They feed largely on grubs and grasshoppers, but are not seen in such grassy fields as the Bartramian sandpiper. When a flock of killdeers are feeding, they are in full view. Hence the close cropped pasture is their favorite resort. They visit some bar or lake shore at night, or morning and evening, to drink and feed and sport along the shore; thus there is usually a regular flight of killdeers two or three times a day between the fields and the water side. They are noisy birds, keeping up a continual screaming and chattering when at play. When flying also, they call *kill-dee, kill-dee* at frequent intervals; and in the breeding season, the male circles around his chosen fields with measured flight and incessant reiteration of his shrill voiced love song. While flying about in sport they occasionally rush headlong downward through the air, with quivering, swirling flight, uttering at the same time a rattling torrent of high pitched notes. A similar vocal performance is frequently executed when they are running along the ground, usually with upstretched wings. This happens when several birds are together, and is accompanied by a ducking and chasing about among the troop, reminding one slightly of the intricate dances of the Brazilian lap-wing, as described by Mr Hudson.

The Killdeer runs nimbly and swiftly with its wings well folded above its tail, the head gathered in, the tail straight and the whole body slightly inclined forward. After proceeding a few yards it suddenly stops, stands erect and looks about. Its food is seized with a ducking motion and swallowed directly. As they feed almost entirely on insects which are injurious

to the agriculturalist, they must be regarded as a beneficial species. The dozens of stomachs of killdeers which I have examined contained smooth caterpillars, beetles, grasshoppers and a few water insects. On account of its beneficial and interesting habits, as well as its small size of body, and the inferior quality of its flesh, this bird should be removed from the list of game birds and left to enliven the landscape with its sprightly voice and manners, and to assist the farmer in the destruction of noxious insects.



Killdeer's nest and eggs

Photo by James H. Miller

The eggs of the Killdeer are laid in a slight depression sparsely lined with bits of straw and pebbles, usually in a pasture, cornfield or fallow. The old bird leaves the nest while danger is yet afar off, provided the danger is of human kind, but when cattle or horses come near the nest she makes a great disturbance as if to drive or lead them away. A young friend of mine once found a Killdeer's nest while riding across a common, the old bird fluttering and screaming about his horse's feet so fiercely that he dis-

mounted and discovered the eggs. The following day I visited the locality to photograph the nest, but although I had received careful directions no bird or eggs could be found. The next day I returned with more explicit directions and walked directly to the eggs, but although they were quite warm no bird was seen. The few nests which I have found were discovered by coming suddenly over a rise of ground and starting the old bird before she had had time to steal away. The eggs are four in number, pyriform in shape, of a dull creamy buff, thickly speckled and blotched with black and blackish brown, the dimensions averaging 1.5 x 1.05 inches.

***Aegialitis semipalmata* (Bonaparte)**

Semipalmated Plover

Plate 39

Charadrius semipalmatus Bonaparte. Nat. Sci. Jour. Phila. 1825. 5:98
DeKay. Zool. N. Y. 1844. pt 2, p. 208, fig. 179
Aegialitis semipalmata A. O. U. Check List. Ed. 2. 1895. No. 274

aegialī'tis, Gr. αἰγιάλις, long-shoreman, worker by the beach; *semi-palmā'ta*, Lat., partly webbed

Description. *Bill short; outer and middle toes webbed to the second joint; tail shorter than the Killdeer's, less rounded; upper parts, including center of tail coverts and tail feathers brownish gray; outermost tail feathers white; other tail feathers with subterminal zone of blackish; a black ring around the base of the neck; throat white extending in a collar around the neck in front of the black ring; a white frontlet surrounded by the black band extending over the forecrown from eye to eye, and a black stripe extending over the base of the bill and underneath the eyes; under parts white; white wing stripe less pronounced than the Killdeer's; bill black at tip, orange at base; eyelids bright orange; legs pale flesh color. Winter and young: Have the black mostly replaced by brownish gray, the latter with buffy white edgings above.*

Length 6.5-7.8 inches; extent 15-16; wing 4.7-5; tail 2.25; tarsus .9-.95; middle toe and claw .9; bill .5.

Range and migration. This species breeds from Labrador to the arctic coasts of America and winters from the West Indies and Gulf States to South America. In New York it is a common transient visitant, arriving

on Long Island from the 19th of April to the 12th of May, and passing northward from the 25th of May to the 5th of June, returning from the 1st to the 15th of August and departing for the south from the 25th of September to the 15th of October. On our inland waters it is less common than on the coast, but occurs regularly from May 10th to 30th and from August 1st to September 30th. It is common along the Great Lakes and the shores and marshes of the central lake country.

The Semipalmated plover or American ring-neck, at first sight suggests to the beginner in bird study a diminutive Killdeer, but it is much smaller, has a shorter bill and tail, and lacks the ochreous rump and the second belt on the breast. It is more of a beach bird than the Killdeer. When it first arrives on our shores and has not yet learned the ways of our pot hunters and young sportsmen, it is so unsuspicious that one may approach within a few feet of it. While visiting the mud flats in August, I have sometimes thought them entirely deserted, and have stood looking into the distance in search of migrants, when suddenly I became aware that these gentle little birds were all about me. While motionless they were quite unnoticeable, but as soon as one of them ran swiftly along with its peculiar ploverlike gait, he became clearly visible. While running the white of the plumage made them conspicuous against the dark ground, but when motionless the white seemed merely to break up their shapes and their brownish gray backs were merged in the background. They seemed so soft and chubby and unsuspicious as they trotted about my feet, feeding on their insect fare, that, although they were legal game, it would have been like making war upon babes and innocents to shoot them. Chapman says:

"Their simple, sweet, plaintive call is one of the most characteristic notes heard on our shores. At noonday, when the heat waves are dancing over the marshes and even the twittering oxeyes are silent, one may hear the *cool*, pure notes of this little plover. They may be written as in the accompanying text figure; a third shorter note is sometimes added. Even a whistled imitation of them takes me to the beaches."



Aegialitis meloda (Ord)*Piping Plover*

Charadrius melodus Ord. Edition of Wilson's Ornithology. 1824. 7: 71
DeKay. Zool. N. Y. 1844. pt 2, p. 210, fig. 177

Aegialitis meloda A. O. U. Check List. Ed. 2. 1895. No. 277

melō'da, Lat., melodious

Description. Upper parts *pale whitish ash*; primaries dusky with white middle sections; secondaries and greater coverts mostly white; base of tail and its outermost feathers white, others with blackish terminal portions, slightly tipped with white; a *black belt, usually broken* on the center of jugulum and narrow on back of neck, being widest on sides; a short black band on the forecrown, not reaching from eye to eye; *frontlet, throat, collar* and *under parts pure white*; legs and base of bill yellow or orange; terminal half of bill black; eyelids orange. This is the *whitest of our little plovers*.

Length 6.5-7.5 inches; extent 14; wing 4.5-4.75; tarsus .85-.95; middle toe and claw .75; bill .45-.48.



Piping plover, *Aegialitis meloda* (Ord). Specimen from Lake Ontario now in State Museum. $\frac{2}{3}$ nat. size

The Piping plover, Pale ring-neck, Beach-bird, or Beach-flea inhabits the eastern United States, breeding as far north as the Gulf of St Lawrence and Manitoba, and wintering from Carolina and the gulf coast to the West Indies. In New York it is threatened with extirpation. Though it was common along the south and east coasts of

Long Island in Giraud's time, it is now practically limited as a breeding species to Gardiners island, Ram island and similar localities in eastern Suffolk county. It undoubtedly bred in former years along Lake Erie and Lake Ontario, and Mr Todd found several pairs nesting at Presque Isle, Pa., in 1900, but I can find no definite breeding record for western New York.

The following records from the interior of New York are before me.

Owasco Lake. Fall 1876. Birds Cen. N. Y. p. 30

Lockport, N. Y. Aug. 20, 1885. J. L. Davison

Onondaga co., N. Y. Sept. 1886. Morris Green

Ossining, N. Y. 1898. A. K. Fisher

Lake Ontario, N. Y. Occasional migrant. David Bruce

Lake Ontario, N. Y. May 10, 1900. (♂ "*circumcincta*"). George F. Guelf

Mr Chapman found 10 or 12 birds living on Gardiners island in the summer of 1893 [see Bird-Lore, 5: 182], and Mr Bruen saw five there in June 1904 [see Wilson Bul. 50. p. 18]. In 1883, Mr Dutcher, with Nelson Verity, hunted over a great extent of Jones' beach at South Oyster Bay, for nests of this bird, but although a number of birds were seen, no eggs could be found. On May 30th, 1887, he found a pair evidently nesting on a shelly flat at Amityville beach. Mr W. W. Worthington, in 1900, wrote that both the Piping plover and the belted variety breed in the vicinity of Shelter island. Specimens of the Belted piping plover have been taken also at Rockaway and on Shinnecock bay [see Eagle, N. O. C. Bul. 3: 94; and (Lawrence), Dutcher, Auk, 2: 37]. This variety which was christened *c i r c u m c i n c t a* by Ridgway is now regarded only an instance of individual variation in *A. m e l o d a*. From Dutcher's Notes, supplemented from those of Worthington, Helme, Braislin and Howell, it is evident that the Piping plover arrives from the 3d to the 24th of March, rarely appearing as late as the 12th of April; and departs for the south between the 1st and the 20th of September. Nesting dates range from the 3d to the 10th or 20th of June and the 4th of July. The eggs are laid on the bare sand or bits of broken shells and pebbles, are four in number, creamy white, sparingly speckled with blackish and obscure lilac. Their dimensions average 1.25 x .95 inches.

Mr Langille describes the Piping plover's note as follows: "Its tone has a particularly striking and musical quality. *Queep, queep, queep-o*, or *peep, peep, peep-lo*, each syllable being uttered with a separate, distinct, and somewhat long-drawn enunciation, may imitate its peculiar melody, the tone of which is round, full, and sweet, reminding one of a high key on an Italian hand organ or the *hautboy* in a church organ. It is always pleasing to the lover of Nature's melodies, and in the still air of the evening it is very impressive."

Ochthodromus wilsonius (Ord)*Wilson Plover*

Charadrius wilsonia Ord. Wilson's Ornithology. 1814. 9: 77, pl. 73, fig. 5
 DeKay. Zool. N. Y. 1844. pt 2, p. 211, fig. 176
Aegialitis wilsonia A. O. U. Check List. Ed. 2. 1895. No. 280

ochtho'dromus, Gr. ὄχθος, bank, δρόμος, running; *wilson'ius*, in honor of
 Alexander Wilson

Description. *Bill rather long, stout; tail nearly square; upper parts*
pale brownish gray; band on the forecrown and belt across the forebreast



black; loreal stripe blackish; primaries and central tail feathers blackish; frontlet, line over the eye, throat, collar around the neck, entire under parts, and outer tail feathers white; the latter marked with dusky toward the ends; nape and sides of occiput tinged with ochraceous next the white collar; legs flesh-colored; eyelids uncolored; bill black.

Length 7.25-8 inches; wing 4.5-5; tail 2; tarsus 1.1-1.2; middle toe and claw .9; bill .8-.9.

The Wilson plover was never common on the coast of this State and although DeKay speaks of it as breeding, there

Wilson plover. *Ochthodromus wilsonius* (Ord). From specimen in State Museum. $\frac{2}{3}$ nat. size

seems to be no definite record of its nest and eggs ever having been found in New York. The following are the records of its occurrence for the last 60 years:

Flatlands, L. I. Collection of L. I. Hist. Soc.

Penn Yan, N. Y. Spring 1868. Birds Cen. N. Y. p. 30

Rockaway, L. I. July 1, 1872. Lawrence, Forest and Stream, 10: 235

Buffalo, N. Y. Rare migrant. Bergtold, Birds of Buffalo, 1889. p. 9

Far Rockaway, L. I. May 17, 1879. (♀). Lawrence, Auk, 2: 273; Forest and Stream, 12: 348

Good Ground, L. I. May 28, 1879. (♀). Dutcher, N. O. C. Bul. 4: 242; 5: 186

Oneida Lake, N. Y. 1880. Ralph & Bagg, Birds of Oneida County, p. 115

Shinnecock bay, L. I. May 15, 1884. (♀). Dutcher, Auk, 3: 438

This species can be regarded only as an accidental summer visitant on our shores. It is a maritime species, inhabiting the coast of America from Long Island and southern California to Peru and Brazil.

Family **ARENARIIDAE***Turnstones*

Bill shorter than head, constricted at base, somewhat concave above the nostrils, slightly bent up, and tapering from the middle to a rather sharp point; nasal groove broad and shallow, similar to plover; legs rather short and stout, scutellate in front; toes free, very narrowly margined, the hallux large for this order, reaching the ground; wings long and pointed; tail short, slightly rounded; plumage pied or somber.

The turnstones are a family of three or four species, evidently related to plovers and oyster catchers. Our single species and its European representative are of holarctic distribution and perform extensive migrations. Their common and scientific names refer to the habit of turning over stones in search of insects for which occupation their bill is admirably fitted.

***Arenaria interpres morinella* (Linnaeus)**

(*Arenaria morinella* on plate)

Ruddy Turnstone

Plate 33

Tringa interpres Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 148. (Part)

Strepsilas interpres DeKay. Zool. N. Y. 1844. pt 2, p. 216, fig. 182

Arenaria interpres A. O. U. Check List. 1895. No. 283

arenā'ria, Lat., pertaining to sand; *intēr'pres*, Lat., interpreter

Description. *Upper parts varied* with chestnut or bright rufous, black and white; top of head buffy white streaked with blackish, remainder of head, neck and forebreast pied black and white, black predominating on the chest and extending down the sides of breast; rest of *under parts, lower back, and longer tail coverts white*; subterminal zone of the tail black; base and narrow tip of tail white; primaries blackish, white toward the base of middle web; inner secondaries white; greater coverts tipped with white; bill black; feet orange-red. *Female:* Similar, but most of the rufous replaced with grayish brown, the black less intense. *Winter and young:* The chestnut wanting, and the black mostly replaced by brown and gray.

Length 8.5-9.8 inches; extent 16-19.25; wing 5.5-6; tail 2.6; tarsus 1; middle toe and claw 1-1.1; bill .8-.9.

This is the American representative of the common turnstone of the palearctic region which also reaches Greenland and Alaska. Our species breeds from Hudson bay to the Mackenzie delta and migrates southward to the Gulf States and South America. It is a common transient visitant along the coast of New York arriving in the spring from the 1st to the 15th of May, passing northward from the 1st to the 10th of June, returning from the 23d of July to the 8th of August, and departing for the South between September 20th and October 5th. In the interior of the State it is much less common than along the coast, but is noted almost every season somewhere in western New York between the 20th of May and the 5th of June. In the fall it is no commoner than in the spring, occasionally appearing in August and September and once on October 6th. On June 1, 1895, I witnessed a flight of hundreds of these birds in company with Whistling plovers, sanderlings and other shore birds on Canandaigua lake in Ontario county. The island bar was overcrowded with them and it was impossible to take a pair of turnstones with the shot-gun without killing a dozen others and a few Black-bellied plovers, and sanderlings and sandpipers at the same time. This was an unusual occurrence and the birds were undoubtedly forced to alight by the strong wind which had been blowing for several hours previously. On the Great Lakes they usually occur singly, in pairs, or in small companies.

The Turnstone, Calico-back, Brant-bird, Horse-foot snipe, Heart-bird, Beach plover, and Sea quail as this species is called, from its habit of rolling over stones in search of the small crustaceans beneath, or from the patch-work appearance of its upper parts, or from its simultaneous appearance with the flight of brant, or from its fondness for the spawn of the horseshoe crab, or from the black heart-shaped marking on the chest, is primarily a beach bird and a maritime species, evidently visiting our inland stations when taking a short route from the Atlantic coast to Hudson bay.

Family **HAEMATOPODIDAE**

Oyster-catchers

Large; bill twice as long as head, much compressed, sharp edged, truncate, contracted above the nostrils; legs stout, reticulate; toes with thickened

lateral membrane, and the middle and outer webbed at the base; no hallux; plumage pied, commonly in large dark and white areas; bill and feet bright colored; habitat maritime; food largely mollusks which they open or dislodge with their wonderfully constructed beaks.

Haematopus palliatus Temminck

American Oyster-catcher

Haematopus palliatus Temminck. Manuel d'Ornithologie. 1820. 2: 532
DeKay. Zool. N. Y. 1844. pt 2, p. 217, fig. 183
A. O. U. Check List. Ed. 2. 1895. No. 286

haemä'topus, Gr. *ἀματόπους*, red-footed; *palliātus*, Lat., cloaked, or wearing a pallium

Description. Large; head, neck, upper breast shiny black; back, wing coverts, rump, and central tail coverts *smoky brown*; primaries and terminal portion of tail blackish; part of secondaries, lateral and longer tail coverts, base of tail and under parts white; bill, eye ring and eyes red; feet pale purplish.

Length 17-21 inches; extent 30-36; wing 9.8-10.25; tail 4; tarsus 2-2.5; middle toe and claw 1.75; bill 2.9-3.75; depth of bill in front of nostril .5.

This species inhabits temperate and tropical America from New Jersey and Mexico to Chili and Brazil. It rarely wanders up the coast to Long Island, Cape Cod and the coast of Maine. In the days of DeKay and Giraud, it was evidently more common on the coast, as Giraud speaks of obtaining them singly



American oyster-catcher. *Haematopus palliatus* Temminck. From specimen in State Museum. $\frac{1}{2}$ nat. size.

or in pairs on the south shore of Long Island between Raynor South and Babylon. Our only definite records are as follows:

New York harbor, N. Y. May 28, 1877. Robert Lawrence, N. O. C. Bul. 5: 117

Pouquogue, L. I. Mar. 9, 1880. Dutcher, Auk, 10: 272

Greenport, L. I. June 2, 1882. Dutcher, Auk, 3: 439

Long Island, Lawrence Collection 3166. Am. Mus. Nat. Hist.

Also a specimen in the collection of Long Island Historical Society, from Long Island

The Oyster-catcher is more strictly a maritime species than any other of our shore birds and nearly rivals the Sickle-bill curlew in size, but is not held in great esteem as a game bird. They frequent the bars and beaches, feeding on marine insects, small crabs and bivalves which their knifelike bill is admirably fitted to open.

Order **GALLINAE**

Gallinaceous birds

This order (Galliformes, Sharpe's Hand-List) is well exemplified by the common barnyard fowl. The bill is short, stout and convex, the tip vaulted and obtuse, its texture horny throughout, the nasal fossae covered by feathers or scales, the edges of the upper mandible overreaching the lower, the ridge of the culmen high and dividing the frontal feathers. The legs are stout and moderately long, feathered to the heel or farther in some families, the tarsus scutellate or feathered, the front toes webbed at the base, the hallux elevated and rather small except in guans or megapodes. The wings are short, rounded, arched and strong. Cranium small. Body heavy. Plumage aftershafted. Fifth cubital present. Palate schizognathous. Nasals holorhinal. Cervicals 16. Sternum deeply two-notched. Furculum or "wishbone" with a hypocleidium. Pectoral muscles three, the second very large. Coeca long. Crop large. Gizzard very muscular. Gall bladder present. Physiological nature praecocial and ptilopaedic. Eggs numerous and large. Mating habits polygamous. Feeding habits chiefly terrestrial and largely rasorial. Flesh mostly edible, and light-colored in most of the families. This order includes the megapodes (28 species) of Polynesia, etc.; the guans and curassows (59 species) of tropical

America; and the *Phasiani*, comprising the turkeys (four species) and toothed partridges (70 species) of America; the Guinea fowls of Africa (23 species); the pheasants, francolins, true partridges and quails of the Old World (240 species) and the grouse of holarctic distribution (45 species and subspecies).

Family ODONTOPHORINAE

American Partridges, "Quails"

Size rather small; head completely feathered; nasal fossae not feathered; nostrils covered with a naked scale; tarsi and toes naked; tarsi scutellate; toes scarcely or not at all fringed; edges of under mandible toothed; tail of 12 feathers, rarely 10 or 14. This family of about 70 species is confined to the new world, probably being of neotropical or Sonoran origin, but resembling the *Perdicinae*, or Old World Partridges. They are well represented in the southwestern United States and in tropical America, but only one species is found in the Eastern States. This is our well known Bobwhite.

Colinus virginianus (Linnaeus)

Bobwhite

Plate 40

Tetrao virginianus Linnaeus. *Syst. Nat.* Ed. 10. 1758. 1: 162
Ortyx virginiana DeKay. *Zool. N. Y.* 1844. pt 2, p. 202, fig. 168, 169
Colinus virginianus A. O. U. Check List. Ed. 2. 1895. No. 289

colinus, of uncertain origin, probably from the Mexican; *virginiā'nus*, of Virginia

Description. Upper parts varied with chestnut, gray, rusty and black. *Male*: Throat white, margined all around with blackish; a white line from the forehead over the eye and down the sides of the neck; sides and back of neck with dashes of white; under parts grayish white, wavy barred with blackish; sides broadly streaked with rufous or brownish red; tail feathers bluish gray. *Female*: Somewhat smaller and duller; the throat and superciliary stripe buffy or brownish yellow. Bill blackish; feet brown.

Length 9.5-10.75 inches; extent 14.5-16; wing 4.25-4.75; tail 2.4-2.9; tarsus 1.2-1.5; middle toe and claw 1.3-1.35; bill .55-.65.

Distribution. The Bobwhite, or Quail, was formerly well distributed throughout New York State as far north as the counties of Jefferson, Oneida, Saratoga and Washington, to an altitude of about 1000 feet, and in the southeastern portion, to an altitude of 2000 feet. At the present day it

is a rare bird in all portions of the State, excepting Long Island, the lower Hudson valley, and the Delaware valley. Numerous importations of southern or western birds have done little, if any, permanent good in restoring its former abundance. Every year we hear of broods of bobwhites reared in western or central New York and the Upper Hudson valley, but the severity of our winters, and the depredations of cats and other predacious animals, and the persecution of gunners and pot hunters, combine to keep the birds continually in check.

Haunts and habits. The Bobwhite prefers open fields of grass or stubble or fallow, with brushy coverts near at hand as a refuge from the storm and



Photo by L. S. Horton
Bobwhite's nest and eggs

from its enemies. They are wholly beneficial in habits, in the spring and summer partaking largely of insect diet and in the fall and winter of weed seeds and waste grain. In May the male mounts some fence post, stone or other elevated object, and whistles his familiar *Bob-white*, or *Ah, Bob-white*, which is variously translated by the country people into "*more wet*," or "*no more wet*;" or "*pease most ripe*," and "*Buckwheat*," or "*Good buckwheat*." In the mating season the cocks often fight fiercely but they are not polygamous and the male helps at incubation, sometimes

continuing in charge of the nest and young when the female has been accidentally killed. The nest is placed upon the ground under a small bush, or bunch of grass, or in a briar patch, or beside the fence between cultivated fields. It is composed of dry hard grasses and bits of grain stubble. The eggs are from 10 to 18 in number, pure white in color, and pyriform in shape, being quite pointed at the smaller end. Occasionally as many as 37 eggs have been found in one nest, undoubtedly the laying of two or more hens. The time of incubation is about 24 days [Bendire]. The young follow their mother from the nest in a day or two after hatching. They are covered

with chestnut and buff down and are very expert in lying concealed among the grass and leaves at a warning note from their mother. A second brood of young is sometimes reared but this is certainly not the rule in our latitude. After the nesting season they gather in coveys of 12 to 30 birds and remain in company till the following spring. They roost upon the ground, gathered in a small circle, each one facing outward, and, if disturbed, each one springs upward and outward with a startling whirr, all going in different directions, so that the enemy, whether it be cat or fox or owl or man, is so disconcerted that their escape is assured. After a covey has been flushed they usually alight again within 20 or 30 rods, and its scattered members begin to call to each other, especially if it be late in the afternoon, in a softly whistled *quoi-ree, quoi-ree*, until the family is reunited. I have often followed the history of a covey of bobwhites through the winter as told by their tracks in the snow. As weeks advance their numbers gradually decrease, and their roosting spot is often changed, to escape from some wandering cat, or hovering owl which has discovered their retreat. Sometimes a Cooper hawk, or a Goshawk, remains in the vicinity and takes his toll from the flock whenever they venture from the thick coverts for the food which becomes more and more necessary as the cold and snows of winter oppress them. Those coveys which winter in swamps where there is shelter in the tall grass from the snow and sleet, and where they are less liable to be crusted over, usually survive the best, but they are running the risk of wholesale slaughter by minks and weasels if discovered. In a well cultivated country the quail have great difficulty in finding food when the ground is covered with snow, and I have often seen the bevy reduced to the necessity of feeding on the seeds of milkweed, burdock, and an occasional ragweed. When the ground is uncovered they pick up waste grain of all kinds, wild pease, trefoil, smart weed, sunflower, beech nuts, small acorns and small weed seeds of all kinds. They also partake of wintergreen, viburnum berries, and wild grapes. After reading the history of their dangers and hardships in the snow, one feels less inclined to hunt the Bobwhite for the table, although he surely is as delicious a morsel as any in the list of our game birds.

Protective measures. It is certain that bobwhites will never be common in our State without protection and encouragement. The southern and western birds which have been imported are not hardy enough to withstand our winters. In any case it would be well to furnish shelter and food for the birds during the winter months. Then, if they are protected from wandering cats and dogs, and gunners, they will increase until a hardy race is established. The Cooper hawk, Sharp-shinned hawk, and Goshawk should also be kept off the ranges; and, especially during the nesting season, or when the chicks are young, cats should not be allowed to roam the fields. If farmers and landowners generally would unite in these protective measures we feel confident that the Bobwhite would thrive again in New York as he did when our grandfathers were boys.

Family **TETRAONIDAE**

Grouse

Grouse have the tarsi more or less feathered, at least on the upper forepart. Some, like the ptarmigans, have the feet densely feathered to the nails. Those, like the Ruffed grouse, which have the feet naked are provided with a horny, comblike fringe on the sides of the toes. The nasal fossae are feathered; some have a naked, colored spot above the eye, and many a naked patch on the sides of the neck. The colors are subdued and blended. The tail consists of 16 to 20, or 22 feathers.

This is a family of about 25 species, besides the numerous subspecies, scattered through the holarctic realm, and especially well represented in North America. They are mostly birds of temperate and cold temperate regions, but the ptarmigans live throughout the arctic regions. Everything considered, grouse are the choicest game birds we have, like the Black cock and Red grouse of Europe, the Ruffed grouse and Prairie hen of America being famous alike for the sport which they offer in the field and the delicious quality of their flesh.

Canachites canadensis canace (Linnaeus)*Canada or Spruce Grouse*

Plate 41

Tetrao canadensis Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 159

DeKay. Zool. N. Y. 1844. pt 2, p. 206, fig. 173

Dendragapus canadensis A. O. U. Check List. Ed. 2. 1895. No. 298*canachi'tes*, Gr., *καναχέω*, to make a noise, referring to the drumming; *canadēn'sis*, of Canada; *canā'ce*, Gr., *Κανάκη*; *canace*, daughter of Aeolus, from *καναχή*, a noise

Description. Tarsi feathered to the toes; a bare orange spot above the eye; no crest or ruff; tail of 16 feathers. *Male:* Upper parts and sides wavy barred with black and gray; under parts extensively black with white feather tips; tail black with ocherous rufous or orange-brown tip. *Female:* Quite uniformly varied with ocherous, gray and blackish, the gray appearing as a veil cast over the ocherous and blackish bars; under parts with white feather tips. *Young:* Similar to female.

Length 15-17 inches; wing 7; tail 5.5. Hens smaller than cocks.

The Canada grouse, Spruce grouse, Spotted grouse or Spruce "partridge," is confined to the boreal life zone of North America. In New York it occurs only in the spruce, fir, and tamarack forests of the Adirondacks where it is a strictly resident species. It was formerly common throughout the tamarack and spruce swamps of the North Woods, but for many years it has become scarcer and scarcer, until it is now threatened with extermination in our State. On September 1st, 1879, Dr Merriam noted it as common on the Brown's Tract Still-Water, Herkimer county, and found it near Big Moose in 1880 and 1882. Mr Scott Brown of St Huberts showed me a fine pair which were taken in the swamp along the cold slough near the head of Upper Ausable lake, in the fall of 1904. Mr Miner of Saranac stated that only one specimen in many years had been brought to his place to be mounted. This grouse is so unsuspicious that when disturbed they alight in neighboring trees and the whole company may be shot down one after another without a single bird escaping. Thoughtless hunters have often accomplished this feat and afterward told of it as being an exploit of sportsmanship. As the species is of local occurrence in the Adirondacks, it is easy to see how this treatment has brought about its destruction. In

April and early May the males strut and drum somewhat after the manner of the Ruffed grouse, the sound resembling the distant roll of thunder. It is usually produced when the cock is fluttering up an inclined tree trunk or on a stump and from this elevation to the ground again, or sometimes by merely springing into the air for several feet and fluttering to the ground. The nest is placed on a slight elevation in the swamp beside a stump or beneath the low branches of a spruce tree and is constructed of slender twigs and leaves or blades of grass. The materials are added to every day as the laying progresses until a deeply hollowed structure is built up about the eggs, which are from 8 to 14 in number, rather pointed, of a rich buffy or pale brownish color, speckled and spotted with a rich chestnut and blackish brown, and average 1.72 x 1.25 inches in dimensions. The eggs are laid from the 5th to the 20th of May, and the period of incubation is recorded in Bendire's *Life Histories* as 17 days.

In summer and early fall the food of the Spruce grouse consists largely of berries and tender shoots of plants, and its flesh is well flavored, but in winter it feeds almost entirely on spruce buds and then the flesh becomes bitter and unpalatable.

***Bonasa umbellus umbellus* (Linnaeus)**

Ruffed Grouse

Plate 41

Tetrao umbellus Linnaeus, Syst. Nat. Ed. 12. 1766. 1: 275

DeKay. Zool. N. Y. 1844. pt 2, p. 204, fig. 174

Bonasa umbellus A. O. U. Check List. Ed. 2. 1895. No. 300

bonā'sa, Gr. βόναρος, Lat. *bonasus*, bison, the drumming being likened to the bellowing of a bull; *umbē'l'us*, poor Latin referring to the umbel, or umbrella, formed by the ruffs

Description. *Crested and ruffed*; the bare skin beneath the ruff apparently not distensible as in the Heath hen; tail as long as wings, somewhat doubly emarginate so that it is nearly half diamond shape when spread, of 18 broad truncate feathers; tarsi partly feathered in front; plumage beautifully blended with rufous brown, blackish, and gray; *ruffs black* or brownish black, with greenish or steel-blue iridescence; *tail rufous or gray with a broad subterminal band of blackish* and numerous small broken bars of the

same; under parts grayish or tawny white with broad obscure bars of dusky, becoming broad and blackish on the flanks. The hen is smaller, with shorter tail and ruffs. This species, like the Screech owl, exhibits a kind of dichromatism, some specimens having a prevailing rufous, or reddish brown color of the upper parts, especially the tail, and others a prevailing gray, which is not by any means confined to the subspecies *togata*, but is exhibited by southern birds as well, both types of color often occurring in the same brood.

Length 16-19 inches; extent 23-25; wing 7-8; tail 5.5-7; tarsus 1.5-1.6; middle toe and claw 1.75-1.9; bill about .6; weight 18-24 ounces.

Distribution. The Ruffed grouse was formerly common in every county of New York from Staten Island to Mt Marcy, but is now rare in the more thickly settled districts, and is probably extirpated from Richmond, New York and Kings counties. It is most abundant on the borders of the Catskills and the highlands of western New York, and in the outskirts of the Adirondack country. It is impossible to draw definitely the boundary between the Ruffed grouse proper (*umbellus*) and the Canadian ruffed grouse (*togata*), as there is a continual gradation from the birds of southeastern New York to those of the Adirondack forests, which are certainly of the subspecies *togata*. Birds from the highlands of eastern and western New York are intermediate between the two.

Haunts. The Ruffed grouse, or Partridge, as it is almost universally called in this State, and "Pheasant" further south, is a bird of the woodlands. It prefers rugged hillsides and a country broken with gullies and small streams, with a mixed growth of oak and pine, or of hemlock, beech, birch and maple. A suitable woods for grouse has dense undergrowth, and the birds frequent the borders of the forest, or the edges of openings and slashings. In the wooded portions of the State, grouse are much more abundant than in the settled districts, but even there they are most often found about the burnt tracts or recently lumbered districts, where there is both an abundant cover and a more plentiful supply of berries, tender plant shoots and insects than in the depths of the forest. In settled districts they are rapidly becoming uncommon, as their native coverts disappear, and are now found principally in the wooded swamps, gullies and hill slopes. In the fall, just before the trees drop their leaves, there is a dispersal of

grouse in all directions from the locality where they were reared. They then appear in unusual places and even enter the villages and cities. At this time of the year, many suppose that grouse become bewildered, and they certainly exhibit strange instincts at this season. Many instances are recorded of their having flown directly into cities and through plate glass windows or into houses in the country, or standing stupidly on the



Photo by James H. Miller

Ruffed grouse on nest

porch like tame chickens when people were about, or of alighting in trees over much frequented sidewalks and staring at people passing underneath, or being flushed from a garden or dooryard and flying directly against the side of a barn nearby. I am inclined to think that grouse at this season are not afflicted by any nervous disease, but have an instinct to wander into new localities, an impulse which is of great value to the species in restocking depleted coverts, and in introducing new strains of blood in

different localities, thus maintaining the vigor of the breed. I have seen grouse in the North Woods which were as heedless of man's presence as if they had been reared in a barnyard and when flushed would alight in the nearest tree and almost allow themselves to be knocked off with sticks. The so called "crazy grouse," like these birds, having entered surroundings with which they are wholly unfamiliar, have not yet adapted themselves to the new conditions.

Habits. Early in spring the cock grouse begins to strut and drum on some chosen log or mossy mound. When strutting he raises and spreads his ruff until it forms a circle about his head, and spreads his magnificent tail until it forms a semicircle above his back, then with drooping wings, he parades up and down his drumming log with all the conceit of a diminutive turkey cock. When he has displayed his charms for some time, without the expected appearance of an appreciative audience, he commences to drum, or, as in the case which I witnessed in the Upper Ausable swamp, he sits moping on the log, as if sleepy, or waiting, or wearied from his exertions, but presently becomes alert, raises his head, drops his tail, straightens his wings, fluffs out his breast feathers, and begins to beat the air with his wings, slowly at first, but with ever increasing rapidity, until there is visible only a mazy blur, extending from a horizontal to a vertical position at the bird's side, the wings evidently not striking each other or the log on which he stands, but as Professor Hodge suggests, the loose feathers of the sides and flanks may act as a pillow or resonance box to increase the hollow sound. The sound of the drumming carries a long distance through the forest and bears remarkable resemblance to the starting of an automobile engine when heard at a distance, beginning with two or three slow resonant thumps and rapidly increasing in speed till it becomes a continuous whirr. This is the signal to the hen that her lord is at the accustomed rendezvous. But the drumming is not heard merely in the springtime. Mr Scott Brown of St Huberts, informs me that he has heard it nearly every month in the year. In midsummer when the birds are molting, they rarely if ever drum, and in midwinter it is an unaccustomed sound, but in the sunny days of the fall, it is almost as familiar a woodland sound as in the spring-

time. I have also heard it on moonlight nights, and as early as half past three in the morning, the commonest times for the performance being at daybreak, in the middle of the forenoon, and the latter part of the afternoon. During the drumming period the action is repeated every few minutes.

Nesting. The usual time for the beginning of incubation is from April 20 to May 10, rarely as early as April 5th. The female chooses her nesting



Photo by James H. Miller

Ruffed grouse's nest and eggs

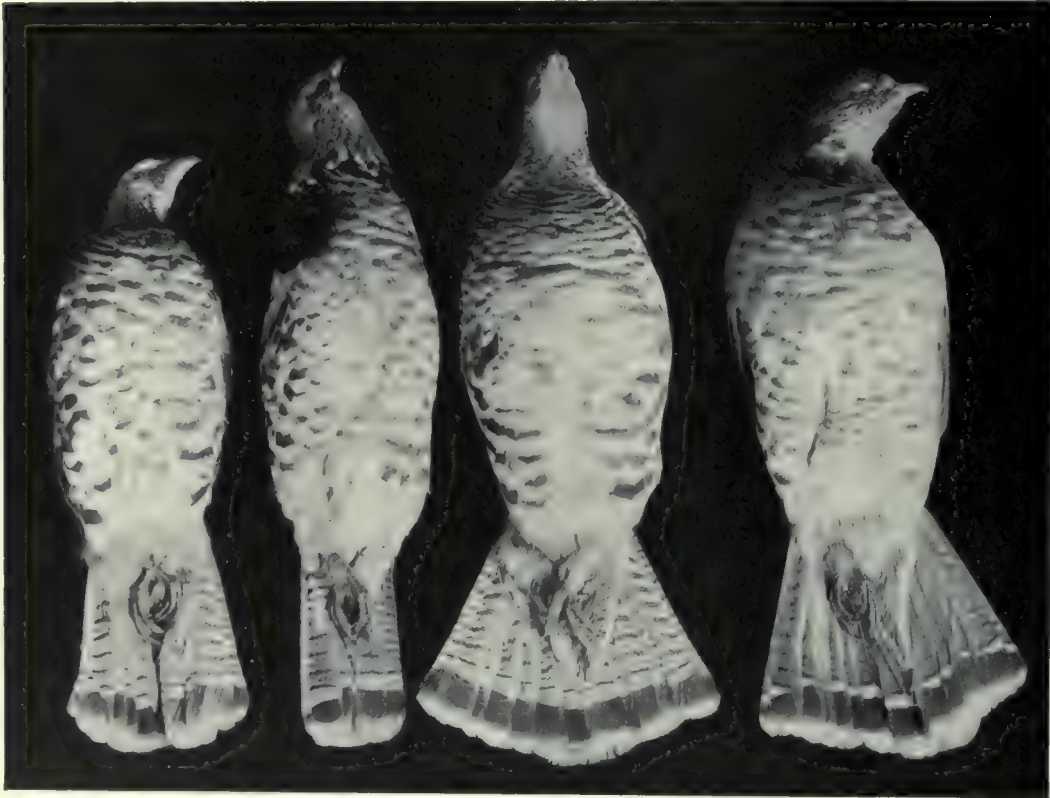
site at the foot of a tree or stump, or beneath a bush or small hemlock; scratches a slight depression and lines it with leaves, and deposits from 8 to 14 eggs of a buffy color, usually plain, but sometimes sparingly speckled with brown, averaging 1.5 x 1.18 inches in size. The period of incubation according to Bendire lasts from 24 to 28 days. The young follow the mother from the nest about a day after hatching and are extremely expert in hiding among the dead leaves at the warning note from the mother. She exhibits

the most acute distress when her chicks are in danger and flutters about or limps along as if with broken wing until she has lured the intruder away from her young, when she flies off into the forest and returns to her brood by a circuitous route. On two or three occasions when the mother grouse saw that her ruse was of no avail, I have actually been attacked by her and driven from the locality. She charges with ruffs and hackle feathers thrown high up like a mane about her head, her tail and wings spread, to beat the intruder with her powerful wing strokes. The young can fly when they are as large as small robins and soon learn to alight in thick trees and remain motionless while danger is near. The grouse utters a subdued *cluck*, and when startled makes a plaintive sound "resembling the whining of young puppies."

Food. When young they feed almost entirely on insects, being very fond of grasshoppers, beetles, ants and various kinds of leaf eating larvae. Late in summer they feed largely on berries of all kinds, the leaves of clover, strawberry and the tender shoots of plants, especially beech drops and the young leaves of wintergreen. In the fall they are fond of beech nuts, chestnuts, small acorns and haw berries, or the fruit of the *Crataegus*; and in winter subsist principally on the buds of birch, poplar, and apple trees, often traveling a distance of 50 or 100 rods to visit isolated trees late in the afternoon to feed on the buds. The grouse seems to be partial to leaves with pungent flavor, like wintergreen, mint, sorrel, birch, and various kinds of berries, which impart a peculiar gamey flavor to its flesh, and, it is said, when it has fed for some time on the mountain laurel, becomes bitter or even poisonous.

Roosting. When the chicks are young they sleep on the ground brooded by the hen, but when they are able to fly they roost in trees at a height of from 8 to 20 feet, the more easily to avoid their numerous enemies. During the coldest weather I have found grouse roosting both on the ground and in dense pines or hemlocks, but in snowy and stormy weather they usually sleep in the snow, at the foot of a tree or stump, but not among the thick brush, and are frequently buried in the snow to a depth of several inches, as may be seen by examining the roosting holes which they have

left. I have seen grouse on a few occasions dive into the snow on a hillside or at the foot of a tree, and this seems to be their usual method of going to bed in the coldest winter weather, for, by studying the records in the snow, it is evident that they do not walk to their sleeping place but dive into it from a neighboring tree, a habit which undoubtedly saves



Specimens of Ruffed grouse, *Bonasa umbellus*, from New York State showing gradation from *B. u. umbellus* on the right (Bergen, Genesee county), to *B. u. togata* on the left (Upper Ausable lake). The intermediates are from Saratoga county and southern Ontario county.

them from being tracked by hungry foxes and weasels. When leaving their couch in the snow they come out two or three steps before taking wing, but if disturbed they spring directly out of the snow as I have seen them do on many occasions. In the coldest weather they remain in the snow until late in the morning, and in the worst weather perhaps for two or three days, in this manner being protected from the extreme cold. Some

observers have reported that grouse are occasionally crusted over while sleeping in the snow and are never able to escape, but this is certainly a rare occurrence in our State. With their powerful wings they can force themselves some distance through the snowbanks and in this manner often escape from birds of prey.

Enemies. The greatest enemies of the grouse are foxes, martens, minks, weasels, Great-horned owls, goshawks and Cooper hawks which capture both old and young birds. Chicks are destroyed by cats and crows, and often become victims of ticks and abdominal parasites. In cold, wet seasons the eggs hatch poorly and the young die from exposure. In well settled districts wandering cats are fully as great an enemy as gunners. I have known of a single cat which brought home, in one season, not less than 18 grouse, some of which were two thirds grown, and doubtless others were devoured in the field. Crows destroy the eggs whenever they can discover the nest, and skunks, weasels, and red squirrels are a continual menace during the incubation period.

If the Ruffed grouse is to be preserved in the more thickly populated districts the sportsman must abandon hunting it in these localities, and reserves of several thousands of acres with suitable food and cover should be established in various localities to serve as strongholds and propagating centers for the species. The Ruffed grouse is our finest game bird and it will be a disgrace if it be allowed to go the way of the Heath hen and Wild turkey.

***Bonasa umbellus togata* (Linnaeus)**

Canadian Ruffed Grouse

Tetrao togatus Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 275

Bonasa umbellus togata A. O. U. Check List. Ed. 2. 1895. No. 300a

togā'ta, Lat., togated, gowned, probably referring to the dark or gray suffusion of the plumage in this variety

Description. Ruffed grouse from northern Canada are easily distinguishable from those of the Middle Atlantic States by their much darker hue, especially the barring of the under parts, these *cross markings being quite dusky across the breast, and becoming almost black on the flanks*. The edges of each bar, even on the center of the breast, are blackish. There

is also a tendency to grayish rather than rufous on the upper parts and the tail is usually gray. Birds from the Adirondacks are nearly typical of this subspecies. In size they are the same as the subspecies *umbellus*.

As stated under the common Ruffed grouse, the birds from a large portion of New York State are intermediate between this subspecies and the preceding. It is practically impossible to assign many New York specimens to one subspecies or the other. The illustration on page 372, of typical New York birds will show the degree of darkness in the barring of the under parts, which is the most tangible means of distinction between them. The two varieties are identical in habits and their eggs indistinguishable.



Willow ptarmigan *Lagopus lagopus* (Linnaeus). Specimen in summer plumage. American Museum of Natural History. $\frac{2}{3}$ nat. size



Willow ptarmigan. *Lagopus lagopus* (Linnaeus). Specimen in winter plumage. American Museum of Natural History.
 $\frac{1}{2}$ nat. size

***Lagopus lagopus* (Linnaeus)**

Willow Ptarmigan

Tetrao lagopus Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 159

Lagopus lagopus A. O. U. Check List. Ed. 2. 1895. No. 301

lagōpus, Gr. *λαγώπους*, Lat., *lagopus*, harefoot

Description. Feet completely feathered. *Winter:* Pure white with black tail. *Summer, male:* Head, neck and upper parts rich chestnut or rufous, more or less barred with blackish; wings and under parts largely white. *Spring and fall:* Showing various stages of pied plumage. *Female:* Lighter colored than summer male, more heavily barred, only the wings white.

Length 15-17 inches; wing 7.5-8; tail 5.5.

The Common or Willow ptarmigan is circumpolar in distribution, breeding in the arctic regions and wandering irregularly south in winter, in eastern America rarely to Maine, Massachusetts, New York, and Illinois. The only New York specimen known was obtained May 22, 1876, by Romeyn B. Hough at Watson in Lewis county, [see Coues, N. O. C. Bul. 3:41],

and Merriam [*Ibid.* 6:233]. A southward movement also occurred in 1897 when this species was taken on May 15th at Whitby, Ont. [see Ames, Auk, 14: 411].

***Tympanuchus cupido* (Linnaeus)**

Heath Hen

Tetrao cupido Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 160

DeKay. Zool. N. Y. 1844. pt 2, p. 205, fig. 175

Tympanuchus cupido A. O. U. Check List. Ed. 2. 1895. p. 306

tympanū'chus, Gr. *τύμπανον*, Lat. *tympanum*, membrane, and Gr. *ἔχω*, I have;

cupi'do, Lat., Cupid, the neck tufts being likened to Cupid's wings

Description. Tarsi lightly feathered to the toes; a tuft of from 7 to 10 elongated pointed feathers on each side of the neck over the naked membrane, which is very distensible, in the mating season being inflated at will until it looks like a small orange; tail short, of 18 stiff feathers; breast meat dark; upper parts light reddish brown barred with dusky and buff; under parts white broadly barred with brown; chin, throat, cheeks, and stripe over the eye buffy.

Length 16 inches; extent 27; wing 8.35-8.6; tail 4. Female smaller; wing 8; darker and rustier.



Heath hen, *Tympanuchus cupido* (Linnaeus). From specimens in Vassar College Museum. $\frac{1}{2}$ nat. size

The Heath hen is the Atlantic coast representative of the well known Pinnated grouse or Prairie hen of the western prairies.

It formerly inhabited a considerable portion of the Atlantic States east of the Alleghanies, especially New Jersey, New York and Massachusetts, but is now confined to the island of Martha's Vineyard, where about 300 birds survive, and will undoubtedly increase under the determined protective measures which have been adopted by the Massachusetts Legislature. It was once common among

the scrub oaks and pine barrens of Long Island, but was "very nearly if not entirely extinct," in 1844, according to Giraud. The last specimen recorded from the State was shot at Comac Hills, in 1836 [see Dutcher, Auk, 10:272]. In early colonial days it evidently was well distributed in southeastern and eastern New York, for DeVries and Megapolensis speak of it as common at New Amsterdam and Fort Orange (Albany) in 1639 [see N. Y. Hist. Soc. Coll. Ser. 2, 3, 90, 150; also Munsell, Annals of Albany, 9:126].

By intelligent and persistent effort this fine bird could be reestablished on the plains of eastern Long Island.

***Lyrurus tetrix* (Linnaeus)**

Black Grouse

Description. *Male:* Black with violet reflections, lower tail coverts, broad band in wing, tips of secondaries and small spot below the eye, white; naked eyebrow vermilion; tail lyre-shaped; feet feathered to the toes. Length 23 inches. *Female:* Above barred with rusty red and black; below dusky barred with red and whitish; tail emarginate, but not strikingly lyre-shaped.

The Black grouse, Black cock or Black game has been imported and liberated in the Adirondacks, especially on the preserves of Edward H. Litchfield at Tupper lake. There seems no reason why this fine grouse should not thrive in the North Woods, if protected and reinforced occasionally by fresh stock until it is well established.

***Tetrao urogallus* Linnaeus**

Capercaillie or Capercaillie

Description. *Male:* Head and neck dusky; wings brown speckled with black; tail and belly black spotted with white; breast lustrous green; rump and flanks ashy, undulated with black; throat feathers elongated into a black beard; bare eyebrows red. Length 34 inches; weight 8 to 11 lbs. *Female:* One third smaller; barred and spotted with tawny red, black, and white; breast dark red; weight 4½ pounds.

This magnificent grouse, like the Black cock, inhabits Europe and North and Central Asia, being confined to the pine or evergreen forests of the north or the mountains of the more temperate countries as far south as northern Greece and Spain. Its food consists of tender shoots of the fir, buds of other trees, berries and seeds. It has recently been introduced and is apparently established in the Algonquin Park of Canada, and in 1905 and 1906 was liberated in Mr Litchfield's Adirondack preserve, where it ought to thrive.

Family PHASIANIDAE

As defined by Ogilvie Grant and as used by Sharpe in his Hand-List of Birds, this family includes the true partridges and quails as well as the pheasants and their immediate allies, not even sub-families *Perdicinae* and *Phasianinae* being recognized. The family characters as distinguished from other gallinaceous birds are: tarsi and toes bare, claws well developed for scratching, nasal fossae uncovered, plumage dry and hard. In this family are found many of the best known and most valuable of birds, including the barnyard fowl, which, in its multiplicity of forms, has descended

from some of the four or five species of the genus *Gallus* still found in southeastern Asia. Many species of the most resplendent plumage and wonderful adaptations for sexual rivalry are found among the pheasants, such as the Peacock, Argus pheasant and Golden pheasant; but the partridges and quails, which are not given to polygamy, do not exhibit the spurs, wattles, plumes and brilliant colors possessed by the pheasants. Various members of this family have been introduced in America, but thus far only the Ring-neck, English and Japanese pheasants seem to be well established. The common European Partridge, *Perdix cinerea*, was liberated in several localities in New York State during the spring of 1909, under the name of Hungarian partridge, and may become acclimated in a few years.

***Phasianus colchicus* Linnaeus**

English Pheasant

phasiā'nus, Gr. *φασιανός*, Lat. *phasianus*, the bird of the river Phasis; *col'chicus*, Lat. of *colchis*, the land of the Golden Fleece, from which the ancient Greeks are said to have brought this bird

Description. *Male:* Tail very long, cuneate, tapering; head with ear tufts and finely mottled sides; head and neck peacock blue, glossed with metallic reflections of green, bronze and purple; sides of head bare, scarlet; back orange-brown, variegated with dark green, buff and black; rump and upper tail coverts rufous, with black and reddish variegations; tail olive-brown, edged with purplish rufous, and barred with black; breast glossy, coppery chestnut, edged with purplish; no rings about the neck. Length 36 inches or less according to the development of the tail; tail up to 21 inches; extent about 32 inches; weight about 3 pounds. *Female:* Much smaller; length about 24 inches; tail 12 inches; weight 2 pounds; colors plain blended light brown and dusky.

This famous bird is a native of Asia Minor, Transcaucasia, Turkey and southeastern Russia as far north as the Volga. The ancient Greeks and Romans cultivated it, the latter no doubt introducing it into Britain, as it was well established in England and held in high esteem at the time of the Norman Conquest. Now the English breed is so mixed with the Chinese ring-necked pheasant and the Green pheasant which have been introduced into Great Britain in modern times, that pure blooded *colchicus* is difficult to procure except by importation from the Orient. It has been liberated in various portions of New York State, especially on Long Island and in the Lower Hudson valley, where it survives and breeds in a wild state, but probably will never thrive except under special protection.

***Phasianus torquatus* Gmelin**

Ring-necked Pheasant

torquāt'us, Lat., ringed

Distinctive marks: Similar in general color to the English pheasant, but male with a conspicuous white ring about the neck; top of head more greenish bronze, and a whitish line on sides of crown; the sides golden buff, spotted with black; the upper wing coverts pale grayish blue; the sides of the rump grayish blue; belly greenish black. Slightly smaller than the English pheasant. Length 34 inches when the tail is full grown; extent 32; weight 2½ pounds or more.

This bird, often incorrectly called the Mongolian pheasant, has become naturalized on Long Island, in the Hudson valley, the Genesee valley, and the lowlands south of Lake Ontario and about the Central Lakes. The State Forest, Fish and Game Commission has distributed birds of this species in many other parts of the State, but correspondence with the persons who received and liberated the birds indicates that pheasants have failed to become established except in the districts mentioned above. There is no question but that the pheasant will thrive in the warmer parts of New York, where the snows are not so severe as to cover its winter food supply of rose hips, wild grapes, thorn apples, weed seeds, waste grain, etc., provided it has reasonable protection and encouragement. It does some harm, however, to newly planted corn by following the rows and digging up the seed with its

powerful beak, and to standing grain, grapes etc., which are near its favorite haunts. It does much good, on the other hand, by destroying large quantities of grasshoppers, June beetles, caterpillars, and weed seeds, and needs little recommendation as a game bird in districts where the grouse and Bobwhite have disappeared.

Family MELEAGRIDAE

Turkeys

Turkeys have the head and upper neck naked, except a few stiff bristles, and wrinkled and wattled, with an erectile process growing on the forehead. The tarsi are naked, scutellate, and spurred in the male. Tail broad, rounded, of 14 to 18 truncated feathers.

Turkeys are an American family, the brilliant Ocellated turkey being a native of Yucatan, and the more familiar Wild turkey in its various forms, or subspecies, ranging through Mexico and the eastern United States. The Mexican form was the original of the domestic race which was established in Europe as early as 1530, and has become one of the most important birds of the world from an economic standpoint. The scientific name of the family is a misnomer, being the original name of the Guinea hen, and if the popular impression of the origin of the common name is correct, this is a misnomer also, but it is probable, as has been suggested, that the common name has reference to the call note of the bird which resembles the syllables *turk, turk, turk*. The Wild turkey is our noblest game bird, but is difficult to hunt successfully in sportsmanlike manner, and has long since disappeared from the more settled portions of the country.

Meleagris gallopavo silvestris (Vieillot)

Wild Turkey

Meleagris silvestris Vieillot. Nouv. Dict. d'Hist. Nat. 1817. 9: 447

Meleagris gallopavo DeKay. Zool. N. Y. 1844. pt 2, p. 199, fig. 172

A. O. U. Check List. Ed. 2. 1895. No. 310

meleā'gris, Gr. *μελαγρίς*, Lat. *meleagris*, the guinea fowl; *gallopā'vo*, Lat. *gallus*, cock, and *pavo*, peafowl; *silvē'stris*, of the woodland

Distinctive marks. The common Wild turkey resembles the well known "Bronzed turkey" of the domestic race, but the erectile process on the forehead is less developed; *tip of the tail deep rusty* or chestnut, and the *tail coverts tipped with deep, rich chestnut*.

Length: male 48-50 inches; female 36; weight: male 16-30, or even 40-45 pounds; female 12 pounds.

Wild turkeys formerly inhabited eastern North America from Maine, Ontario, and Dakota to the gulf coast, but have long since disappeared from New England and New York. A few remained in Clinton, Fulton and Keating counties, Pennsylvania, until the close of the 19th century. These are the nearest native wild turkeys we have at present. In 1844, according to DeKay, they still were found in Sullivan, Rockland, Orange, Allegany and Cattaraugus counties of New York State, but must have been destroyed soon thereafter as I can find no subsequent records for the State. In colonial times they were common in New York. DeVries, in the journal of his voyages to New Netherlands, frequently speaks of them, and mentions shooting one near New Amsterdam which weighed 30 pounds. In 1641, at Fort Orange (Albany), there were "so many turkeys that they came to the houses and hogpens to feed" [Rev. J. Megapolensis, Munsell, *Annals of Albany*, 9: 133; *also* N. Y. Hist. Soc. Col. Ser. 2, 3, 150].

Order COLUMBAE

Pigeons

Head small, no frontal antiae, but the frontal feathers forming an abruptly convex outline at base of bill; neck short; bill horny at tip, compressed with a tumid swelling near the base about the nostril; wings pointed, flat, powerful, with rapid, whistling flight; legs short, the tarsus scutellate or feathered on point; no plumes; feathers loosely inserted; body plump, full breasted; front toes cleft, rear toe insistent, hence better perchers than Gallinae and more arboreal in habits; plumage without aftershafts, oil gland bare or wanting; gall bladder usually wanting; coeca small or wanting; two carotids; crop large, secreting a milky fluid to aid in nurturing the young; gizzard muscular; palate schizognathous; nasals schizorhinal; basipterygoids present; sternum doubly notched, or notched and windowed on each side; humerus with strong pectoral ridge; femorocaudal and its accessory, semitendinosus and its accessory, and normally the ambiens, all present. Pigeons walk with a peculiar motion of the head and neck in unison with their footsteps; their notes are a plaintive cooing; they are famously monogamous, the male sharing the care of the young. The nest is a wide, flat structure, the eggs two, white and nearly elliptical in shape. The young are altricial and ptilopaedic.

Family COLUMBIDAE

These are the true pigeons, the Passenger pigeon of America belonging to the subfamily Ectopistinae. The Ground doves and their allies according to Sharpe and other British authorities, should be placed in a separate family, the Peristeridae, distinguished largely by the bare tarsus, longer than the lateral toes. In New York the latter are represented by the Mourning dove and the little Ground dove.

Ectopistes migratorius (Linnaeus)*Passenger Pigeon*

Plate 42

Columba migratoria Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 285
Ectopistes migratorius DeKay. Zool. N. Y. 1844. pt 2, p. 196, fig. 167
 A. O. U. Check List. Ed. 2. 1895. No. 315

ectopistes, Gr. ἐκτοπιστής, wanderer; *migratōrius*, Lat., migratory

Description. Tail long, wedge-shaped, of twelve tapering feathers; wings sharp pointed, the first primary longest; head small; bill short; tarsi feathered part way in front, shorter than middle toe and claw, outer toe longer than inner. *Male:* *Upper parts slaty blue, including the whole head*, slightly shaded with olive-brown on wings and center of back; scapulars and wings with a few black spots; back and sides of neck iridescent with gold and purplish red; wing feathers and central pair of tail feathers blackish, the former with rusty white edgings; sides and flanks bluish; *foreneck and under parts "deep vinaceous rufous"* or light purplish chestnut, becoming whitish on the crissum and under tail coverts; tail feathers, except the central pair, bluish at the base fading to whitish at the tips, with black and *chestnut spots* near their bases; bill black; feet lake-red; bare skin about the eyes orange-red. *Female:* Under parts much *duller*, more olive-brownish above and *grayish below*, fading to whitish behind. *Young:* Duller still, the feathers of upper parts with whitish edgings and the wing feathers with rufous edgings.

Length 15-17.25 inches; extent 23-25.5; wing 8-8.5; tail 8-8.75; tarsus 1; middle toe and claw 1.25-1.35; bill .7-.75; weight 12 ounces.

The history of the wild pigeon in New York State, as told by early writers, or as handed down by pioneer settlers and remembered by persons now living, would fill a volume. The first explorers in New Netherlands and in the lake country all speak of the wild pigeon as among the most interesting and important of the native beasts and fowls. Wassenaers, about 1625, states that they were so numerous at New Amsterdam, "that they shut out the sunshine," [Documentary History of New York, 4: 29].

DeVries found them very numerous at Fort Orange, Albany, in 1639 [New York Hist. Soc. Col., Ser. 2, 3, 90]. Father Reffeix speaks of them as nesting abundantly near Cayuga, in 1670 and 1671, where as many as seven or eight hundred were taken in one haul of the net at the "salt-licks" where they came to drink [Jesuit Relation, 1671-72, 1675]. Near the head waters of the Susquehanna in 1753, Rev. G. Hawley found them breeding in "numbers almost infinite, in an extensive valley 6 or 8 miles in length, every tree having a number of nests and some not less than 15 or 20. As soon as the young are able to fly they are seen no more" [Documentary History of New York, 4: 632]. Near Albany, on March 25, 1830, thousands of pigeons which had begun their spring migration were overwhelmed by a severe snowstorm [Munsell, Annals of Albany, 9: 206]. In 1835, there was a great roost near Norwich, Chenango county, [Whitfield, Auk, 7: 224] and in 1863, near Fort Edward, Washington county. In 1867 there was a large nesting in Clinton county between Altona and Chateaugay [Rintoul, Canadian Sportsman and Naturalist. 1883. 3: 242]. About 1852, occurred the last nesting at Ashford, Cattaraugus county and practically all the squabs raised, together with the greater portion of the old birds, were captured. Between April 1 and June 15, 1854, millions flew regularly across Wayne county, N. Y., to feed at the Salt springs near Montezuma [Mershon, Passenger Pigeon. 1907. p. 122].

The last great pigeon nesting on New York soil evidently occurred in 1868, when millions of birds occupied the timber along Bell's run, near Ceres, Allegany county, on the Pennsylvania line. This nesting-tract was about 14 miles in length. Mr Fred R. Eaton of Olean, who visited the site during its occupation, has furnished the following particulars: The birds began laying in April and the hight of the nesting season was reached about the 10th of May, when hundreds of thousands of nests occupied the hemlock, pine and hardwood trees extending several miles into Pennsylvania. A large hemlock would frequently contain 30 or 40 nests with eggs or young. Both male and female birds took part in incubation and in feeding the squabs, one or the other continually covering the nest. The cock birds left the woods in a great flight early in the morning, scattering northward for many miles to feed on beech nuts, all kinds of grain, seeds and tender

shoots. About 11 o'clock in the forenoon all the hens left their nests to feed, and about 3 o'clock in the afternoon another flight, consisting entirely of red-breasted cocks, occurred. Just before the laying, the birds fed largely along the banks of streams and on the river flats, searching eagerly for earthworms and other "green food," when many were taken by netters and shipped from Olean to New York city by the carload. Great numbers of wagonloads were frequently seen coming into Olean. The whole tribe of Indians from the Cattaraugus Reservation moved to the nesting ground and remained for two weeks to capture pigeons. Professional netters who followed the pigeon nestings also captured them by tens of thousands. Their method of procedure was to construct a bow house near some favorable spot in the valley and set a large net with spring poles so as to cover a wide spot or "bed" on which the bait was scattered, then stool pigeons with their eyes sewed together were tied in such a position that they would keep up a fluttering, or could be made to flutter by the pulling of a string which worked the stool. Then flyers were tethered and when a flock appeared they were cast up and drawn back again by the strings to attract the approaching flocks to the net. In this manner many barrellfuls were captured in a short time. They also invaded the roosts and knocked the squabs off the nests, felling trees so as to shake down hundreds together. In preparing them for shipment their crops were torn out to prevent the breast meat from souring, they were then packed in barrels and hurried to the city. Pigeons continued to nest in this general locality until 1872, but no nesting of any considerable size occurred subsequent to 1875 when they bred in McKean county, Pa.

In 1875 there was an immense roost at Coopers, Steuben county and on May 5th the birds seemed about to nest [*Forest and Stream*, 4:204], but I have been unable to find evidence that a nesting actually occurred there at that time; although the time of year would indicate its probability. Dr C. Hart Merriam writing in 1881, in regard to the wild pigeon in the Adirondack region, says:

It breeds plentifully some years and others is not found at all. Early in June 1878 Dr C. L. Bagg and I found several of their nests in the vicinity of Moose river and about Fourth lake of Fulton chain, in Herkimer county. In one was a young bird almost ready to fly,

while the others contained eggs—and only one each. The crop of the young bird was full of beech nuts, some of which had the shells on. The height at which the nests were placed varied from 7 to 30 feet. They were all much more substantial than the published accounts had led me to believe. In fact they were not frail structures at all, but were so compactly built of twigs, that one could by no means see daylight through them.

Wild pigeons evidently nested somewhere in western New York, or more likely in the forests of Pennsylvania, during the 80's, or later, as young birds were captured by the author at Springville, in 1882, in 1889 by Mr Kibbe at Mayville, and in the same year by Mr Bacon at Erie, Pa. This is the last definite evidence I have of their having bred in our State or its immediate vicinity, and in the years 1878-82 their numbers had so noticeably decreased that their final extermination was apprehended. The records of the Pigeon's appearance during the closing years of its history may be of interest:

- Cooper, Steuben co., N. Y. May 5, 1875. Immense roost. *Forest and Stream*, 4: 204
 Rochester, N. Y. Spring of 1875. Immense flights. *Forest and Stream*, 6: 18
 " April 10, 1876. Immense flights. *Forest and Stream*, 6: 171
 Meacham Lake, N. Y. May 2, 1876. Fuller, *Forest and Stream*, 6: 301
 Central N. Y. Arrives Mar. 3, 1877. c. breeds. Fowler, *Forest and Stream*, 7: 36
 Ithaca, N. Y. Apr. 6, 1877. Becoming rare. C. J. Pennock
 Buffalo, N. Y. Mar. 8, 1878. c. *Forest and Stream*, 10: 99
 Elmira, N. Y. Mar. 7, 1878. Flock. Gleason, *Forest and Stream*, 10: 503
 Herkimer co., N. Y. Mar.-Sept. 1878. ab. Egg taken. May 18. C. J. Pennock
 Lewis co., N. Y. Mar.-Sept. 1878. Dr C. H. Merriam
 Ithaca, N. Y. Apr. 2, 1878. 2 seen. C. J. Pennock
 Eldred, N. Y. Mar. 14, 1879. *Forest and Stream*, 12: 216
 Lewis co, N. Y. Apr. 20-Oct. 1879. Dr C. H. Merriam
 " Apr. 20, 1880. Dr C. H. Merriam
 Penn Yan, N. Y. June 1880. 50 seen. Verdi Burtch
 Lewis co., N. Y. Aug. 31-Sept. 10, 1881. Dr C. H. Merriam
 " Mar. 3-22, 1882. Dr C. H. Merriam
 Springville, N. Y. Mar. 20-28, 1882. Several flocks of 30-100. E. H. Eaton
 Troy (market), N. Y. Mar. 23, 1882. Several purchased by A. F. Park
 Moose River, N. Y. May 2, 1882. Some shot. Dr C. H. Merriam
 Springville, N. Y. July 21, 1882. Young bird shot. E. H. Eaton
 Niagara co., N. Y. May 10, 1883. J. L. Davison
 Lewis co., N. Y. Apr. 7-May 12, 1883. Dr C. H. Merriam
 Lowville, N. Y. Apr. 12, 1884. 200 seen. James H. Miller

- Canadice, N. Y. 1884. Small flock seen. D. Byron Waite
 Long Island City. Mar. 29, 1885. 1 seen. W. F. Hendrickson
 Locust Valley, L. I. Sept. 7, 1885. Quite plentiful. W. F. Hendrickson
 Long Island City. Sept. 22, 1885. 2 shot. (Hendrickson). Dutcher, L. I. Notes
 " Sept. 20, 1886. 1 shot. John Hendrickson
 Sag Harbor, L. I. Oct. 22, 1886. 1 shot. (Byram). Dutcher, L. I. Notes
 Peterboro, Madison co., N. Y. Sept. 1886. 2 seen. Gerrit S. Miller
 Long Island City. Oct. 19, 1887. W. F. Hendrickson
 Cold Spring Harbor, L. I. Sept. 1888. 3 flocks, one of 20, others smaller. Dutcher
 Westchester co., N. Y. Oct. 11, 1888. Gerald H. Thayer
 Mayville, N. Y. May 15, 1889. Small flock, ♂ taken. A. E. Kibbe
 " May 30, 1889. Young taken. A. E. Kibbe
 Erie, Pa. June 9, 1889. ♂ taken. (Bacon). Todd, Birds of Erie, 551
 " July 18, 1889. Young taken " " "
 Millers Place, L. I. Sept. 26, 1889. 4 seen. A. H. Helme
 Rockaway, L. I. Oct. 13, 1889. 1 shot. (Brasher). Dutcher, L. I. Notes
 Millers Place, L. I. Fall of 1890. 6 seen. A. H. Helme
 Niagara, Ont. Sept. 1891. Young ♂ taken. Ottomar Reinecke
 Ithaca, N. Y. Spring 1892. 1 shot. L. A. Fuertes
 Chautauqua co., N. Y. Summer of 1892. Small flock. Mershon, Passenger Pigeon. 1907. p. 150
 Oxford, Chenango co., N. Y. 1893. Pair seen. F. H. Williams
 Washington co., N. Y. Sept. 1893. 3 seen. F. T. Pember
 Monroe co., N. Y. Mar. 29, 1894. 1 shot. George F. Guelf
 East Schodack, N. Y. 1895. Small flock. (Payne). Judd, Birds of Albany Co.
 1907. p. 136
 Monroe co., N. Y. Apr. 7, 1895. 1 seen. George F. Guelf
 Clinton, Oneida co., N. Y. Sept. 1895. 1 shot. J. R. Benton
 Lewis co., N. Y. May 22, 1896. Flock of 300 seen. Johnson, Auk, 14: 88
 Angola, Erie co., N. Y. Spring 1896. E. R. Reynolds
 Englewood, N. J. June 23, 1896. Young male taken. Chapman, Auk, 13: 341
 Lowville, N. Y. Oct. 1896. 1 seen. James H. Miller
 Toronto, Ont. Oct. 22, 1896. 11 seen. Fleming, Auk, 20: 66
 Livonia, N. Y. 1896. Small flock seen. D. Byron Waite
 Buffalo, N. Y. Apr. 14, 1897. 2 seen. James Savage
 Esperance, Schoharie co., N. Y. 1897. Flock of seven seen. Dr D. Norwood
 Sangerfield, Oneida co., N. Y. July 1897. Seen. W. B. Mann
 Canandaigua, N. Y. Sept. 14, 1898. ♂ taken. Addison P. Wilbur
 Big Sandy Creek, N. Y. Fall 1898. 7 seen. Dr M. L. Crockett
 East Batavia, Genesee co., N. Y. Sept. 28, 1899. Flock of 20 seen. F. J. Sager
 Toronto, Ont. May 16, 1900. Flock of 10 seen. (Spanner). Fleming, Auk, 20: 66
 " July 6, 1900. 5 seen. (Samuel). Fleming, Auk, 20: 66
 Penetanguishene, Ont. May 16, 18, 1902. 2 seen. (Young). Fleming, Auk, 20: 66
 Canandaigua, N. Y. Sept. 12, 1902. 1 seen. E. H. Eaton

Port Ewen, N. Y.	Spring of 1904.	70-80 seen.	Mershon, Passenger Pigeon.	1907.	p. 184
Sullivan co., N. Y.	Fall 1904.	Large flock seen.	"	"	183
West Point.	1905.	2 seen.	"	"	180
Catskill.	Spring 1905.	Flock seen.	"	"	183
Sullivan co.	Fall 1905.	Flock seen.	"	"	183
Prattsburg, N. Y.	April 1906.	Large flock seen (Burroughs).	Mershon, Passenger Pigeon,	1907.	p. 181
Kingston, N. Y.	May 15, 1906.	Flock mile long seen (Burroughs).	Mershon, Passenger Pigeon.	1907.	p. 181
Sullivan co., N. Y.	May 23, 1907.	Flock of 1000 seen.	Burroughs, Outlook,	July 13, 1907.	p. 547
Rensselaerville, N. Y.	Summer 1907.	1 seen. (Huyck).	Judd, Birds of Albany Co.		p. 136

It is possible that some of these records, when the birds were merely seen, are in error, but Mr Wilbur's specimen, which I saw killed, was unquestionably reared in the spring of 1898, as it was just assuming the adult plumage, and a few scattered birds of this species may still be in existence, but we very much fear that the Passenger pigeon is doomed to extermination.

***Zenaidura macroura carolinensis* (Linnaeus)**

Mourning Dove

Plate 42

Columba carolinensis Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 286
Ectopistes carolinensis DeKay. Zool. N. Y. 1844. pt 2, p. 197, fig. 166
Zenaidura macroura A. O. U. Check List. Ed. 2. 1895. No. 316

zenaidū'ra, from Zenaida, name of an allied dove, and Gr. *οὐρά*, tail

Description. *Tail* long, pointed, of 14 tapering feathers; wings pointed, the second primaries longest, the first and third almost equal to it; *tarsus* naked, scutellate in front, shorter than middle toe, but longer than lateral toes; outer toe shorter than inner; bill shorter than head, slender; bare space above the eye. In general form and color much like the Passenger pigeon, but in structure quite different. *Male*: Upper parts, including central tail feathers, bluish gray, shaded with olive-brown; head and neck overlaid with glaucous blue; sides of neck with shining iridescence; *a bluish black spot under the ear*; scapulars and wing coverts with a few black spots; tail feathers, except the middle ones, grayish blue for the basal portion, then banded with black and tipped with white; *forehead and under parts vinaceous*, becoming ochereous on the belly; bill black, angle of mouth carmine;

eyes brown; feet red. *Female*: A little smaller and considerably duller than the male. *Young*: Similar to female but grayer, and the black spots wanting.

Length 11-13 inches; extent 17-19; wing 5.7-6; tail 5.7-6.5; tarsus .8; middle toe and claw 1; bill .6; weight 5-6 ounces.

Field marks. This species has been mistaken for the Passenger pigeon on numberless occasions and it is well for the observer to note his bird carefully to avoid being in error. The Mourning dove is much smaller than the wild pigeon, but, when no standard of comparison is at hand, it often gives the impression of being a much larger bird than it is. Its breast is much less red than the pigeon's, it is not so blue on the back, and it has the black spot in the ear region which is lacking in the pigeon.

Distribution. The Mourning dove is fairly well distributed in all parts of New York, excepting the northern portion and the Highlands



Photo by Guy A. Bailey

Mourning dove. *Zenaidura carolinensis* (Linnaeus)

which are above 1000 feet in elevation, where it is rather uncommon. It is occasionally found about the borders of the North Woods as at Lake George, Old Forge, and Ausable Forks, but it is more characteristic of the Carolinian, and the warmer portion of Transition zone, than of the cooler districts. It is common in the coastal district, lower Hudson valley, and the lowlands of western New York, arriving from the south early in March in southeastern New York, and from the 20th to the 30th of March in the western counties, and departs for the south late in October, or in November, but rarely remains throughout the winter months in the warmer portions of the State.

It frequently begins to breed as early as the 20th of April and two or possibly three broods are reared. The nest is placed in the thick branches of an evergreen tree, in the fork of an apple tree, in an old robin's nest, on the top of a stump, or rotten rail in an old fence, or any other convenient location, sometimes even on the ground at the edge of a gravel pit or embankment. It is composed of slender twigs and grass stalks, and lined with a few leaves, grasses or moss, but quite flat and meager. The eggs are two



Photo by Ralph S. Paddock

Mourning dove's nest and eggs

in number, nearly elliptical in shape, and pure white in color, averaging about 1.12 x .82 inches in size. All summer long the mournful cooing of this little pigeon can be heard in the orchards and shade trees, even in the villages and the outskirts of cities, where they are left unmolested.

The Mourning dove is beneficial in its food habits, partaking only of waste grain, weed seeds and insects. I have taken several

thousand seeds of the foxtail or pigeon grass from the crop of a single dove which was shot from a flock of about 30 that were coming from an oat field in Ontario county. By measurement it was evident that this company of doves had just picked up about two quarts of weed seeds for their afternoon meal. Consequently in the course of several weeks they would do the farmer an inestimable service. The flesh of the Mourning dove is well flavored, and they are killed by thousands for food in the southern states, and if they ever become too abundant in New York State, they may be treated as a game bird under proper restrictions, to replace in some degree the finer species which we have lost.

Columbigallina passerina terrestris (Chapman)*Ground Dove*

Columbigallina passerina terrestris Chapman. Am. Mus. Nat. Hist.
Bul. 1892. 4: 292

A. O. U. Check List. Ed. 2. 1895. No. 320

columbigallina, Lat. *columba*, pigeon or dove, and *gallina*, hen; *passerina*,
sparrowlike; *terrestris*, terrestrial

Description. Very small. *Male*: Forehead and under parts mostly vinaceous, the chest feathers with blackish centers; crown and back of head bluish gray; back brownish gray; wing coverts with dark steel-blue spots; tail blackish toward the end and tipped with whitish; bill coral red at base, blackish toward the tip. *Female and young*: Much paler and duller.

Length 6-7 inches; wing 3.5; tail 2.7; bill .45.

This diminutive pigeon inhabits the Southern States from Texas to North Carolina, and is accidental in the North Atlantic States. It was added to the New York list by Dr George B. Grinnell who gives the following account of its capture:

Early one Saturday in October 1862, I set out with another small boy, Henry A. Clapp, on a shooting excursion, the expected game being robins and flickers, with the possibility of a wild pigeon. We had just entered a piece of woods just north of the present 158th street, between what were later to become 11th and 12th avenues, when a small flock of birds alighted in a tall tulip tree almost above our heads. I was carrying the gun at the moment and fired at one of the birds resting on a branch, and when it fell and I picked it up I saw that it was a very small "pigeon." Neither my companion nor myself had ever seen anything like it but we both had seen Passenger pigeons.

When we had crossed the dirt road which is now 158th street we had seen Mr John Woodhouse Audubon mending fence near the corner of 158th street and 12th avenue, and knowing that he knew all about birds we went down to him and asked him to tell us what this was. He was a near neighbor of our parents, and we knew him very well, for much of our time was spent playing with his sons in and about his house and stables. He told us that it was a Ground dove, and pointed out a number of its characters. He also said, as I recall it, that he had never before seen one in that neighborhood.

After this we kept on our way and presumably at the end of the day returned with whatever game we had killed and ate the Ground dove.

Possibly a dozen years later, between 1870 and 1874, I saw another specimen of this species in New York, while walking along the Aqueduct in the general neighborhood of 160th street and 9th avenue. The bird was sitting on a fence and I had a good opportunity to look at it. By this time I knew something about birds myself and recognized what it was. The day was Sunday and I had no gun and no means of securing the bird.

EXPLANATION OF PLATES

Plate I

HOLBOELL GREBE

Page 92

HORNED GREBE

Page 94

PIED-BILLED GREBE

Page 96

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate I



HOLBOELL GREBE
Columba holboellii (Reinhardt)
WINTER SUMMER

PIED-BILLED GREBE SUMMER
Podilymbus podiceps (Linnaeus)
All 2 nat. size

WINTER

HORNED GREBE
Columba auritus Linnaeus
SUMMER

John J. Audubon & Co. N.Y.

Plate 2

RED-THROATED LOON

Page 103

BLACK-THROATED LOON

Page 108

COMMON LOON

Page 99

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 2



RED-THROATED LOON
Gavia immer (Brünnich)
SUMMER
WINTER

COMMON LOON
Gavia immer (Brünnich)
SUMMER
WINTER
All 1 nat. size

BLACK-THROATED LOON
Gavia arctica (Linnæus)
SUMMER

Gavia arctica (Linnæus)



Plate 3

BLACK GUILLEMOT

Page 106

RAZOR-BILLED AUK

Page 110

DOVEKIE

Page 111

BRÜNNICH MURRE

Page 107

PUFFIN

Page 105

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 3



BLACK GUILLEMOT
Cephus grylle (Linnaeus)
WINTER SUMMER

BRÜNNICH MURRE
Uria lomvia (Linnaeus)
SUMMER EGG WINTER

RAZOR-BILLED AUK
Alca torda Linnaeus
SUMMER

PUFFIN
Fratercula arctica (Linnaeus)
SUMMER

All $\frac{1}{2}$ nat. size

DOVEKIE
Alle alle (Linnaeus)
SUMMER

Plate 4

POMARINE JAEGER

Page 114

LONG-TAILED JAEGER

Page 117

PARASITIC JAEGER

Page 116

SKUA

Page 113

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 4



POMARINE JAEGER *Stercorarius pomarinus* (Temminck)
 LONG-TAILED JAEGER *Stercorarius longicaudus* Vieillot
 ADULT IMMATURE *S. parasiticus*

PARASITIC JAEGER *Stercorarius parasiticus* (Linnaeus)
 DARK PHASE INTERMEDIATE LIGHT PHASE
 SKUA *Megalestris skua* (Brünnich)

All $\frac{1}{2}$ nat. size

Plate 5

RING-BILLED GULL

Page 130

HERRING GULL

Page 137

GREAT BLACK-BACKED GULL

Page 125

GLAUCOUS GULL

Page 122



RING-BILLED GULL
Larus delawarensis Ord
ADULT IN SUMMER IMMATURE
GREAT BLACK-BACKED GULL
Larus marinus Linnaeus
IMMATURE ADULT IN SUMMER

HERRING GULL
Larus argentatus Brinnich
IMMATURE ADULT IN SUMMER
GLAUCOUS GULL
Larus glaucus Brinnich
END OF SECOND YEAR IMMATURE ADULT IN SUMMER
All : nat. size



Plate 6

SABINE GULL
Page 136

LAUGHING GULL
Page 132

KITTIWAKE
Page 121

BONAPARTE GULL
Page 134

IVORY GULL
Page 120

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 6



SABINE GULL. ADULT IN SUMMER
Xema sabini (Sabine)

LAUGHING GULL. ADULT IN SUMMER
Larus atricilla Linnaeus

KITTIWAKE
Rissa tridactyla (Linnaeus)
ADULT IN SUMMER
IMMATURE

IVORY GULL
Pagophila alba Gunnerus
IMMATURE
All $\frac{1}{2}$ nat. size

BONAPARTE GULL
Larus philadelphia (Ord)
ADULT IN SUMMER
IMMATURE

ADULT IN SUMMER

Plate 7

ARCTIC TERN

Page 146

LEAST TERN

Page 148

FORSTER TERN

Page 142

COMMON TERN

Page 143

GULL-BILLED TERN

Page 137

SOOTY TERN

Page 149

BLACK SKIMMER

Page 152

ROSEATE TERN

Page 147

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 7



From *Spizella* *Spizella*

- | | | | |
|--|--|--|---|
| ARCTIC TERN ADULT IN SUMMER
<i>Sterna paradisaea</i> Brünnich | SOOTY TERN ADULT IN SUMMER
<i>Sterna fuscata</i> Linnaeus | FORSTER TERN
<i>Sterna forsteri</i> Nuttall | IMMATURE
COMMON TERN
<i>Sterna hirundo</i> Linnaeus |
| GULL-BILLED TERN ADULT IN SUMMER
<i>Gelochelidon nilotica</i> (Hasselquist) | BLACK SKIMMER
<i>Rhinoceros nigra</i> Linnaeus | ADULT IN SUMMER | ADULT IN SUMMER |
| LEAST TERN
<i>Sterna antillarum</i> (Lesson) | ROSEATE TERN ADULT IN SUMMER
<i>Sterna dougalli</i> Montagu | | |
| IMMATURE ADULT IN SUMMER | | | |

All nat. size

Plate 8

CASPIAN TERN
Page 138

BLACK TERN
Page 149

ROYAL TERN
Page 139

BIRDS OF NEW YORK

Memoir 12 N. Y. State Museum

Plate 8



CASPIAN TERN
Sterna caspia Pallas
IMMATURE
ADULT IN SPRING

ROYAL TERN
Sterna maxima Boddaert
ADULT IN WINTER
ADULT IN SPRING
All 1 nat. size

BLACK TERN
Hydrochelidon nigra Surinamensis (Gmelin)
ADULT CHANGING TO WINTER PLUMAGE
ADULT IN SPRING IMMATURE

Plate 9

COMMON CORMORANT

Page 170

DOUBLE-CRESTED CORMORANT

Page 171

GANNET

Page 169



COMMON CORMORANT *Phalacrocorax carbo* (Linnaeus)
 ADULT IN BREEDING PLUMAGE IMMATURE
 DOUBLE-CRESTED CORMORANT *Phalacrocorax auritus* (Lesson)
 ADULT IN BREEDING PLUMAGE IMMATURE
 GANNET *Sula bassana* (Linnaeus)
 ADULT IMMATURE
 All $\frac{1}{2}$ nat. size

Plate 10

RED-BREASTED MERGANSER

Page 176

RUDDY DUCK

Page 225

AMERICAN MERGANSER

Page 177

BUFFLE-HEADED DUCK

Page 211

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 10



RED-BREADED Merganser *Mergus serrator* (Linnaeus)
 FEMALE
 AMERICAN Merganser *Mergus americanus* (Cassin)
 FEMALE

MALE
 All 1 nat. size

RUDDY DUCK *Erythroneura jamarensis* (Gmelin)
 MALE
 BUFFLE-HEADED DUCK *Charitonetta albeola* (Linnaeus)
 FEMALE

Plate II

HOODED MERGANSER

Page 181

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 11



HOODED MERGANSER *Lophodytes cucullatus* (Linnaeus)
♂ nat. size FEMALE

Plate 12

GADWALL

Page 187

BLACK DUCK

Page 185

MALLARD

Page 183

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 12



GADWALL
(*Mareca strepera*)
MALE

FEMALE

MALE
All 1 nat. size

MALLARD
(*Anas platyrhynchos*)
MALE

FEMALE

BLACK DUCK
(*Anas boschas*)
MALE

FEMALE

From *Agassiz's Birds*

Plate 13

AMERICAN WIDGEON

Page 190

GREEN-WINGED TEAL

Page 192

EUROPEAN WIDGEON

Page 180

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 13



AMERICAN WIDGEON
Mareca americana (Gmelin)
MALE FEMALE

EUROPEAN WIDGEON
Mareca penelope (Linnaeus)
MALE FEMALE

GREEN-WINGED TEAL
Nettion carolinense (Gmelin)
MALE FEMALE

All 1 nat. size

Plate 14

SHOVELER
Page 196

BLUE-WINGED TEAL
Page 194

WOOD DUCK
Page 199

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 14



SHOVELER
Spatula clypeata (Linnaeus)
FEMALE

WOOD DUCK
Aix sponsa (Linnaeus)
FEMALE

MALE

BLUE-WINGED TEAL
Querquedula discors (Linnaeus)
MALE

All nat. size

Plate. 15

PINTAIL
Page 197



PINTAIL *Dafila acuta* (Linnaeus)
MALE

1 nat. size

FEMALE

Plate 16

REDHEAD

Page 202

CANVASBACK

Page 203

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 16



REDHEAD
Aythya americana (Eyton)
MALES

CANVASBACK
Aythya vallisneria (Wilson)
MALES

FEMALE

All $\frac{1}{2}$ nat. size

Plate 17

RING-NECKED DUCK

Page 207

SCAUP

Page 205

LESSER SCAUP

Page 206

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 17



RING-NECKED DUCK
Aythya collaris DOHOVAN
FEMALE

MALE

MALE
All 1 nat. size

LESSER SCAUP
Aythya affinis (Eyton)
FEMALE

MALE

SCAUP
Aythya marila (Linnaeus)
FEMALE

A. J. Cooper Painter

Plate 18

AMERICAN GOLDEN-EYE

Page 208

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 18



AMERICAN GOLDEN-EYE *Clangula clangula americana* (Bonaparte)

MALE

FEMALE

$\frac{1}{2}$ nat. size

Plate 19

KING EIDER
Page 220

QC 694.51
HARLEQUIN DUCK
Page 214

AMERICAN EIDER
Page 218

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 19



Amis Cigarré, Paris.

KING EIDER *Somateria spectabilis* (Linnaeus)
FEMALE
AMERICAN EIDER *Somateria dresseri* Sharpe
FEMALE

HARLEQUIN DUCK *Histrionicus histrionicus* (Linnaeus)
MALE
FEMALE

All $\frac{1}{2}$ nat. size



Plate 20

OLDSQUAW
Page 213

AMERICAN SCOTER
Page 221

WHITE-WINGED SCOTER
Page 222

SURF SCOTER
Page 224

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 20



SURF SCOTER <i>Oidemia perspicillata</i> (Linnaeus) FEMALE		OLDsquaw <i>Harelda hyemalis</i> (Linnaeus) FEMALE } WINTER MALE } SUMMER } FEMALE MALE }		WHITE-WINGED SCOTER <i>Oidemia deglandi</i> Bonaparte MALE		AMERICAN SCOTER <i>Oidemia americana</i> Swainson FEMALE	
		All nat. size				Louis Agassiz Reuter	

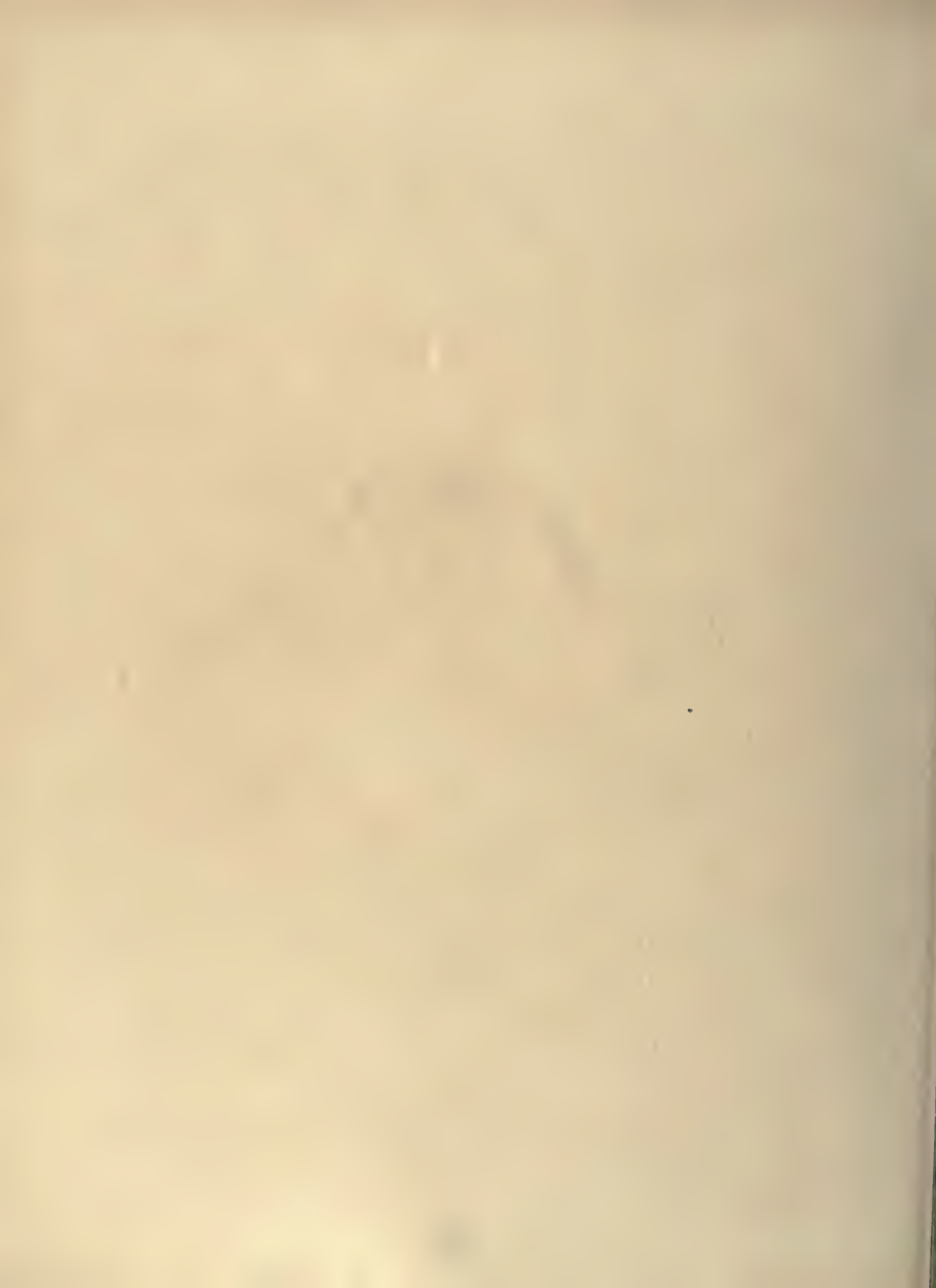


Plate 21

BLUE GOOSE

Page 228

AMERICAN WHITE-FRONTED GOOSE

Page 229

SNOW GOOSE

Page 227

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 21



BLUE GOOSE
Chen caerulescens (Linnaeus)

ADULT

IMMATURE
SNOW GOOSE

Chen hyperborea nivalis (Forster)

IMMATURE

ADULT

All $\frac{1}{2}$ nat. size

AMERICAN WHITE-FRONTED GOOSE
Anser albifrons gambeli (Hartlaub)

ADULT

IMMATURE



Plate 22

WHISTLING SWAN

Page 236

BRANT

Page 233

CANADA GOOSE

Page 230

BLACK BRANT

Page 234

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 22



WHISTLING SWAN
Olor columbianus (Ord)

CANADA GOOSE
Branta canadensis (Linnaeus)
BRANT
Branta bernicla glaucogastra (Brehm)
BLACK BRANT
Branta nigricans (Lawrence)

All $\frac{1}{2}$ nat. size

Plate 23

GREEN HERON

Page 262

LEAST BITTERN

Page 250

AMERICAN BITTERN

Page 246

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 23



GREEN HERON *Butorides virescens* (Linnaeus)
IMMATURE ADULT
AMERICAN BITTERN *Botaurus lentiginos* (Montagu)
All $\frac{1}{2}$ nat. size

LEAST BITTERN *Izobrychus exilis* (Gmelin)
FEMALE MALE



Plate 24

AMERICAN EGRET

Page 256

SANDHILL CRANE

Page 269

BLACK-CROWNED NIGHT HERON

Page 264

GREAT BLUE HERON

Page 253

BIRDS OF NEW YORK

Memoir 12 N. Y. State Museum

Plate 24



Rouin Aguirre Quinteros

AMERICAN EGRET
Herodias egretta (Gmelin)
SANDHILL CRANE
Grus mexicana (Miller)

BLACK-CROWNED NIGHT HERON
Nycticorax nycticorax naevius (Boddaert)
ADULT IMMATURE
GREAT BLUE HERON
Ardea herodias Linnaeus
ADULT IN SUMMER IMMATURE

All $\frac{1}{2}$ nat. size



Plate 25

VIRGINIA RAIL

Page 274

KING RAIL

Page 271

CLAPPER RAIL

Page 272

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 25



DOWNY YOUNG	VIRGINIA RAIL <i>Rallus virginianus</i> Linnaeus ADULT	IMMATURE	KING RAIL <i>Rallus elegans</i> Audubon All 1 nat. size	CLAPPER RAIL <i>Rallus longirostris</i> Gmelin
-------------	--	----------	---	---

Plate 26

YELLOW RAIL

Page 280

OR SORA

CAROLINA RAIL OR SORA

Page 276

LITTLE BLACK RAIL

Page 281

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 26



YELLOW RAIL
Coturnicops noveboracensis (Gmelin)
ADULT
DOWNY YOUNG of Little Black Rail

LITTLE BLACK RAIL
Crecerellus jamaicensis (Gmelin)
ADULT
All ♂ nat. size

CAROLINA RAIL OR SORA
Porzana carolina (Linnaeus)
ADULT

DOWNY YOUNG



Plate 27

PURPLE GALLINULE
Page 283

AMERICAN COOT
Page 286

FLORIDA GALLINULE
Page 284

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 27



PURPLE GALLINULE
Totanus maritima (Linnaeus)

FLORIDA GALLINULE
Gallinula gairdri (Lichtenstein)
All $\frac{2}{3}$ nat. size

AMERICAN COOT
Fulica americana Gmelin
ADULT
DOWNY YOUNG



Plate 28

RED PHALAROPE

Page 289

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 28



RED PHALAROPE *Phalaropus fulicarius* (Linnaeus)

MALE

All 1 nat. size

FEMALE

AUTUMN AND WINTER PLUMAGE



Plate 29

NORTHERN PHALAROPE

Page 291

BIRDS OF NEW YORK



NORTHERN PHALAROPE *Lobipes lobatus* (Linnaeus)
AUTUMN AND WINTER PLUMAGE
All $\frac{2}{3}$ nat. size

FEMALE

MALE



Plate 30

WILSON PHALAROPE
Page 292

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 30



WILSON PHALAROPE *Steganopus tricolor* Vieillot

FEMALE

MALE

All ♀ nat. size

AUTUMN AND WINTER PLUMAGE



Plate 31

AMERICAN WOODCOCK

Page 297

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 31



AMERICAN WOODCOCK *Philoteta minor* (Gmelin)

$\frac{2}{3}$ nat. size



Plate 32



WILSON SNIPE

Page 300

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 32



John Agassiz Duerksen.

WILSON SNIFE *Gallinago delicata* (Ord)

$\frac{1}{2}$ nat. size



Plate 33

See plate 34

RUDDY TURNSTONE

Page 307

RED-BACKED SANDPIPER

Page 315

DOVEBELLER

Page 303

SANDERLING

Page 310

STILT SANDPIPER

Page 306

KNOT

Page 307

BIRDS OF NEW YORK



Actitis macularia (Linn.)
Actitis macularia (Linn.)
Actitis macularia (Linn.)

Actitis macularia (Linn.)
Actitis macularia (Linn.)
Actitis macularia (Linn.)

Actitis macularia (Linn.)
Actitis macularia (Linn.)
Actitis macularia (Linn.)

Plate 34

See plate 33

PURPLE SANDPIPER

Page 308

SANDERLING

Page 319

DOWITCHER

Page 303

RED-BACKED SANDPIPER

Page 315

STILT SANDPIPER

Page 306

KNOT

Page 307

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 34



PURPLE SANDPIPER
Arquatiella maritima (Brünnlich)
SANDERLING
Calidris alba (Pallas)

STILT SANDPIPER
Micropatama himantopus (Bonaparte)
AUTUMN AND WINTER PLUMAGES
All 1/2 NAT. SIZE

RED-BACKED SANDPIPER
Pelidna alpina sakhalina (Vieillot)
KNOT
Tringa canutus Linnaeus

DOWITCHER
Macrorhamphus griseus (Gmelin)

A. S. AGASSIZ



Plate 35

PECTORAL SANDPIPER

Page 309

LEAST SANDPIPER

Page 313

WHITE-RUMPED SANDPIPER

Page 311

SEMIPALMATED SANDPIPER

Page 317

BAIRD SANDPIPER

Page 312

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 35



- | | | |
|---|--|---|
| PECTORAL SANDPIPER
<i>Actodromas maculata</i> (Vieillot) | WHITE-RUMPED SANDPIPER
<i>Actodromas fuscicollis</i> (Vieillot) | BAIRD SANDPIPER
<i>Actodromas bairdi</i> Coues |
| | LEAST SANDPIPER
<i>Actodromas minutilla</i> (Vieillot) | SEMPALMATED SANDPIPER
<i>Ereunetes pinnatus</i> (Linnaeus) |
| AUTUMN | SPRING | SPRING |
| | SPRING | AUTUMN |
| All $\frac{1}{2}$ nat. size | | |



Plate 36

SOLITARY SANDPIPER

Page 326

SPOTTED SANDPIPER

Page 335

GREATER YELLOWLEGS

Page 323

LESSER YELLOWLEGS

Page 325

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 36



SOLITARY SANDPIPER
Helodromas solitarius (Wilson)

GREATER YELLOWLEGS
Totanus melanocircus (Gmelin)

SPOTTED SANDPIPER
Actitis macularia (Linnaeus)

SUMMER PLUMAGES
ADULT
All i nat. size

LESSER YELLOWLEGS
Totanus flavipes (Gmelin)



Plate 37

LONG-BILLED CURLEW

Page 338

ESKIMO CURLEW

Page 341

HUDSONIAN GODWIT

Page 321

HUDSONIAN CURLEW

Page 339

MARbled GODWIT

Page 320

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 37



LONG-BILLED CURLEW
Numenius longirostris Wilson
HUDSONIAN CURLEW
Numenius hudsonicus Latham

ESKIMO CURLEW
Numenius borealis (Forster)
All ♀ nat. size

MARLED GODWIT
Limosa fedot (Linnaeus)
HUDSONIAN GODWIT
Limosa haemadica (Linnaeus)





Plate 38

WILLET
Page 328

BUFF-BREASTED SANDPIPER
Page 334

BARTRAMIAN SANDPIPER OR UPLAND PLOVER
Page 331

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 38



WILLET
Cathartophorus semipalmata (Gmelin)
AUTUMN

BARTRAMIAN SANDPIPER or UPLAND PLOVER
Bartramia longicauda (Bechst.)
BUFF-BREASTED SANDPIPER
Tryngites subruficollis (Vieillot)

All $\frac{2}{3}$ nat. size



Plate 39

AMERICAN GOLDEN PLOVER

Page 346

KILLDEER PLOVER

Page 348

BLACK-BELLIED PLOVER

Page 345

SEMIPALMATED PLOVER

Page 352

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 39



AMERICAN GOLDEN PLOVER
Charadrius dominicus Miller
SPRING
AUTUMN
BLACK-BELLIED PLOVER
Squatarola squatarola (Linnaeus)
SPRING
AUTUMN

KILLDEER PLOVER
Urychus vociferus (Linnaeus)
SEMIPALMATED PLOVER
Argalitis semipalmata Bonaparte

All $\frac{1}{2}$ nat. size



Plate 40

BOBWHITE OR QUAIL

Page 361

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 40



BOBWHITE OR QUAIL. *Colinus virginianus virginianus* (Linnaeus)
MALE AND FEMALE
i nat. size



Plate 41



CANADA OR SPRUCE GROUSE

Page 365

RUFFED GROUSE

Page 366

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 41



CANADA OR SPRUCE GROUSE *Canachites canadensis canadensis* (Linnaeus)

MALE AND FEMALE

$\frac{7}{8}$ nat. size

RUFFED GROUSE *Bonasa umbellus umbellus* (Linnaeus)

FEMALE

$\frac{1}{2}$ nat. size

MALE, STRUTTING



Plate 42



PASSENGER PIGEON

Page 381

MOURNING DOVE

Page 386

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 42



YOUNG

PASSENGER PIGEON *Ectopistes migratorius* (Linnaeus)

MALE
 $\frac{1}{2}$ nat. size

FEMALE

MOURNING DOVE *Zenaidura macroura carolinensis* (Linnaeus)

FEMALE

YOUNG
 $\frac{1}{2}$ nat. size

MALE

INDEX

Page numbers referring to descriptions of species are printed in black face type.

- Accidental** visitants, 17-18.
Accipitriformes, 89, 90.
Actitis macularia, 335-38.
Actodromas bairdi, 312.
 fuscicollis, 311.
 maculata, 311.
 minutilla, 313.
acufflava, *Sterna*, 140.
acuta, *Anas*, 197.
 Dafila, 197-99.
Adirondacks, bird life, 42; preliminary list of birds in, by C. Hart Merriam, 77; summer birds of, in Franklin county, by Theodore Roosevelt jr and H. D. Minot, 77.
Aegialitis meloda, 354-55; figure, 354.
 semipalmata, 352-53.
 vocifera, 348.
 wilsonia, 356.
Aestrelata hasitata, 160.
 scalaris, 160-62; figure, 161.
affinis, *Aythya*, 206.
 Fuligula, 206.
 Marila, 206-7.
Aix sponsa, 199-201.
alba, *Calidris*, 319.
 Gavia, 120.
 Guara, 242.
 Ibis, 242.
 Pagophila, 120.
 Scolopax, 242.
Albatross, 154.
 giant, 154.
albeola, *Anas*, 211.
 Charitonetta, 211-13.
 Fuligula, 211.
 albifrons, *Anser*, 229.
 gambeli, *Anser*, 229-30.
albus, *Larus*, 120.
Alca alle, 111.
 arctica, 105.
 grylle, 106.
 lomvia, 107.
 torda, 110-11.
Alcidae, 90, 105, 112.
Alciformes, 89, 90, 105-12.
Alcyones, 90.
Alle alle, 111-12.
alle, *Alca*, 111.
 Mergulus, 111.
Alleghanian faunal area, 19, 33, 34, 36.
Allen, acknowledgments to, 7; cited, 220.
alpina, *Tringa*, 314.
 alpina, *Pelidna*, 314-15.
 pacifica, *Tringa*, 315.
 sakhalina, *Pelidna*, 315-16.
americana, *Anas*, 190.
 Ardea, 268.
 Aythya, 202.
 Clangula, 208.
 Fulica, 286-88.
 Fuligula, 202, 221.
 Grus, 268, 269.
 Mareca, 190-91.
 Marila, 202-3.
 Mycteria, 244-45.
 Oidemia, 221-22.
 Recurvirostra, 294-95.
 Sula, 169.
americanus, *Cygnus*, 236.
 Merganser, 177.
 Mergus, 177-79.

americanus, Numenius, 338-39.

phaethon, 166-67.

Ames, cited, 309, 376.

Anas acuta, 197.

albeola, 211.

americana, 190.

boschas, 183.

caerulescens, 228.

canadensis, 230.

carolinensis, 192.

clypeata, 196.

collaris, 207.

columbianus, 236.

crecca, 191.

cyanoptera, 195.

discors, 194.

histrionica, 214.

hyemalis, 213.

islandica, 210.

jamaicensis, 225.

labradoria, 216.

leucopsis, 235.

marila, 205.

maxima, 184.

nivalis, 227.

obscura, 185.

rubripes, 185.

penelope, 189.

perspicillata, 224.

platyrhynchos, 183-85.

rubripes, 185-87.

rufina, 202.

spectabilis, 220.

sponsa, 199.

strepera, 187.

vallisneria, 203.

Anatidae, 177.

Anatinae, 182-83, 202.

anglica, Sterna, 137.

Anhingidae, 165.

Anser albifrons, 229.

gambeli, 229-30.

Anser bernicla, 233.

hutchinsii, 232.

hyperboreus, 226, 227.

nigricans, 234.

Anseres, 89, 90, 176-77.

Anseriformes, 89, 90, 176.

Anserinae, 177.

antillarum, Sterna, 148.

aquila, Fregata, 175, 176.

aquilus, Pelecanus, 176.

Arctic zone, 19.

arctica, Alca, 105.

Fratercula, 105-6.

Gavia, 102-3.

Sterna, 146.

arcticus, Colymbus, 102.

Larus, 122.

Mormon, 105.

Urinator, 102.

Ardea americana, 268.

caerulea, 259.

candidissima, 257.

discors, 264.

egretta, 256.

exilis, 250.

herodias, 253-56; figure of nest and eggs, 255.

lentiginosa, 246.

leuce, 256.

ludoviciana, 258.

(*Grus*) *mexicana*, 269.

minor, 246.

naevia, 264.

tricolor ruficollis, 258.

violacea, 266.

virescens, 262.

Ardeidae, 245-46.

Ardeiformes, 89, 90, 240.

Ardetta exilis, 250.

Arenaria interpres morinella, 357-58.

arenaria, *Calidris*, 319.

Tringa, 319.

- Arenariidae, 357.
 argentatus, *Larus*, 127-30.
 smithsonianus, *Larus*, 127.
 argentea, *Sterna*, 148.
 Arquatella maritima, 308-9.
 arquatus, *Numenius*, 342-44.
 Scolopax, 342.
 atricilla, *Larus*, 132-34.
 Audubon, cited, 142.
 auduboni, *Puffinus*, 158.
 Auk, 90, 105.
 razor-billed, 16, 110-11.
 auritus, *Carbo*, 171.
 Colymbus, 94-96.
 Phalacrocorax, 171-72.
 Ausable lakes, bird life, 42.
 Austral region, 19.
 autumnalis, *Plegadis*, 242-43.
 Tringa, 242.
 Avocet, 293-94.
 American, 18, 294-95; figure, 294.
 Aythya affinis, 206.
 americana, 202.
 collaris, 207.
 marila, 205.
 nearctica, 205.
 vallisneria, 203.
 Bacon, cited, 214.
 Badger, cited, 215.
 Bagg, Egbert, cited, 78, 117, 153, 160, 238, 257, 290, 293, 313, 322, 340, 356.
 Baird, cited, 137, 142, 156, 282.
 bairdi, *Actodromas*, 312.
 Pisobia, 312-13.
 bairdii, *Tringa*, 312.
 Baldpate, 15, 188, 190-91, 198, 199.
 Barnum, Morgan K., cited, 78, 342.
 Bartramia longicauda, 331-34.
 bartramius, *Totanus*, 331.
 bassana, *Sula*, 169.
 bassanus, *Pelecanus*, 169.
 Batty, J. H., cited, 121.
 Beach-bird, 354.
 Beach-flea, 354.
 Beal, cited, 174.
 Beebe, cited, 345.
 Beetle-head, 346.
 Bergtold, W. H., cited, 78, 114, 356.
 Berier, cited, 111, 309, 335.
 bernicla, *Anser*, 233.
 Branta, 233.
 bernicla glaucogastra, *Branta*, 233-34.
 Bicknell, Eugene Pintard, cited, 77.
 Birds, dangers threatening bird life, 51-58; migration, 65-72; species added since De Kay's publication, 6; number of species in New York, 11; increase and decrease of species, 50-58; suggestions to students, 57-64.
 Bittern, 51, 53, 54, 55, 57, 62, 65, 245-46, 285.
 American, 13, 36, 43, 64, 246-50; figures, 247, 249.
 Cory least, 253.
 least, 13, 36, 64, 250-53; figure, 251.
 Blackbird, 54, 68, 70.
 crow, 51, 53, 72.
 red-winged, 13, 39, 46, 51, 53, 54, 57, 62, 63, 64, 67, 68, 72.
 rusty, 14, 39.
 yellow-headed, 18.
 Blackhead, 206.
 Blackheart, 316.
 Blaine, cited, 94.
 Blue peter, 288.
 Bluebill, 209.
 big, 206.
 little, 207.
 marsh, 208.
 Bluebird, 12, 34, 42, 49, 51, 57, 60, 63, 64, 65, 67, 68, 70, 72.
 Bluestocking, 294.
 Boatswains, 113, 116.

- Bobolink, 13, 35, 38, 46, 51, 63, 64, 67, 68.
 Bobwhite, 12, 31, 33, 37, 50, 57, 72, 299,
 361-64; figure of nest and eggs, 362.
 southern, 34.
 Bog-bull, 250.
 bonapartii, *Larus*, 134.
 Bonasa umbellus togata, 367, 373-74.
 umbellus, 366-73; figures, 368, 372;
 figure of nest and eggs, 370.
 Booby, 17, 168-69; figure, 168.
 Booby-coot, 226.
 Boreal region, 19.
 borealis, *Numenius*, 341-42.
 Puffinus, 155-56.
 Scolopax, 341.
 boschas, *Anas*, 183.
 Botaurus lentiginosus, 246-50; figures,
 247, 249.
 Bowdish, cited, 325.
 Bowfin, 55.
 Braislin, William C., cited, 80, 106, 109,
 111, 112, 117, 123, 124, 125, 136, 153,
 156, 189, 191, 228, 230, 238, 257, 258,
 262, 267, 290, 309, 313, 319, 321, 322,
 335.
 Brant, 233-34.
 black, 18, 234-35.
 light-bellied, 233-34.
 white-bellied, 17.
 white-headed blue, 229.
 Brant-bird, 358.
 Branta bernicla, 233.
 glaucogastra, 233-34, 235.
 canadensis, 230-32.
 hutchinsi, 232-33.
 glaucogastra, 233.
 leucopsis, 235-36; figure, 235.
 nigricans, 234-35.
 Brass-eye, 209.
 Brewer, cited, 108, 137, 142, 282.
 Brewster, William, cited, 146, 161, 279,
 282, 285.
 Bristle-tail, 226.
 Broadbill, 206.
 bastard, 208.
 buccinator, *Cygnus*, 239.
 Olor, 236, 239-40.
 Buffalo and vicinity, birds of, by W. H.
 Bergtold, 78.
 Buffle-head, 17, 209, 212.
 buffoni, *Lestris*, 117, 119.
 Bunting, indigo, 39.
 lark, 18.
 painted, 17.
 Burgomaster, 123.
 Burroughs, cited, 386.
 Burtis, cited, 112.
 Butorides virescens, 262-64.
 Butterball, 212, 213.
 spoon-billed, 226.
 Butterbox, 213.
 caerulea, *Ardea*, 259.
 Florida, 259-62.
 caerulescens, *Anas*, 228.
 Chen, 228-29.
 Calico-back, 358.
 Calidris alba, 319.
 arenaria, 319.
 leucophaea, 319-20.
 Camptolaimus labradorius, 216.
 Camptorhynchus labradorius, 216-18;
 figure, 217.
 Canachites canadensis canace, 365-66.
 canadensis, *Anas*, 230.
 Branta, 230-32.
 Dendragapus, 365.
 Tetrao, 365.
 canadensis canace, *Canachites*, 365-66.
 canadensis hutchinsi, *Branta*, 232-33.
 Canadian zone, 19, 35; fauna, 36-42.
 candidissima, *Ardea*, 257.
 Egretta, 257-58.
 cantiaca, *Sterna*, 140.

- canutus*, *Tringa*, 307-8.
 Canvasback, 16, 202, 203-5.
 Capercaillie, 377.
Carbo auritus, 171.
carbo, *Pelecanus*, 170.
 Phalacrocorax, 170.
 Cardinal, 12, 32, 33, 39.
 Carinatae, 89-90, 91.
carolina, *Ortygometra*, 276.
 Porzana, 276-80.
carolinensis, *Anas*, 192.
 Columba, 386.
 Ectopistes, 386.
 Hydroka, 96.
 Nettion, 192-93.
 Carolinian faunal area, 19, 32; fauna, 36-42.
carolinus, *Rallus*, 276.
caspia, *Sterna*, 138-39.
 Cat, an enemy of birds, 52, 54.
 Catbird, 14, 34, 41, 48, 54, 63, 64, 68, 72.
Catharacta skua, 113.
Cathartidiformes, 89, 90.
Catoptrophorus semipalmatus, 328-29.
 inornatus, 330.
 Catskill mountains, summer birds of, by Eugene Pintard Bicknell, 77.
cayana, *Sterna*, 138, 140.
Cepphus grylle, 106.
 mandti, 106-7.
 Chadbourne, cited, 156.
 Chalk-line, 263.
 Chamberlain, cited, 142.
 Chapman, Frank M., acknowledgments to, 7; cited, 78, 109, 123, 142, 330, 353, 355, 385.
Charadriidae, 343.
Charadriiformes, 89, 90, 288.
Charadrius dominicus, 346-48.
 melodus, 354.
 mexicanus, 295.
 semipalmatus, 352.
Charadrius squatarola, 345.
 virginianus, 346.
 vociferus, 348.
 wilsonia, 356.
Charitonetta albeola, 211-13.
 Chat, 31.
 yellow-breasted, 14, 32, 33, 41, 69; breeding range, 27.
Chaulelasmus streperus, 187-89.
 Chautauqua county, birds of, by John M. Edson, 78.
 Chemung county, birds of, by William H. Gregg, 79.
Chen caerulescens, 228-29.
 hyperborea, 226.
 hyperborea, 226-27.
 nivalis, 227-28.
 Chewink, 34, 47, 65.
 Chickadee, 11, 41, 42, 49, 51, 60, 63.
 Carolina, 17, 76.
 Hudsonian, 11, 13, 41, 49, 50.
 Chimney swift, 13, 38, 44, 60, 62, 63, 64, 72.
chloropygius, *Totanus*, 326.
Ciconiidae, 244.
Ciconiiformes, 89, 90.
cinclus, *Tringa*, 315.
cinerea, *Perdix*, 378.
cinereus, *Puffinus*, 156.
Clangula americana, 208.
 clangula americana, 208-10.
 hyemalis, 213.
 islandica, 210-11; figure, 211.
clangula, *Fuligula*, 208.
clangula americana, *Clangula*, 208-10.
 Glaucionetta, 208.
 Clarke, John M., acknowledgments to, 6.
 Classification, 88-90.
clypeata, *Anas*, 196.
 Spatula, 196-97.
Coccyges, 89, 90.
 Cock, black, 364.

- Coffin-carrier, 126.
colchicus, Phasianus, 378.
Colinus virginianus, 361-64; figure of nest and eggs, 362.
collaris, Anas, 207.
 Aythya, 207.
 Marila, 207-8.
Columba carolinensis, 386.
 migratoria, 381.
Columbae, 89, 90, 380.
columbianus, Anas, 236.
 Olor, 236-39.
Columbidae, 381.
Columbiformes, 89, 90.
Columbigallina passerina terrestris, 389-90.
Colymbidae, 91-92.
Colymbiformes, 89, 90, 98-99.
Colymbus arcticus, 102.
 auritus, 94-96.
 glacialis, 99.
 holboelli, 92-94.
 immer, 99.
 podiceps, 96.
 septentrionalis, 103.
 stellatus, 103.
 Cooke, acknowledgments to, 7; cited, 226.
 Cooper hawk, 53.
cooperi, Pisobia, 312.
 Coot, 55, 270-71.
 American, 14, 36, 286-88; figure of nest and eggs, 287.
 black, 222.
 bumblebee, 226.
 whistling, 222.
 white-winged, 223.
 yellow-billed, 222.
Coraciiformes, 89, 90.
 Cormorant, 15, 170.
 double-crested, 15, 171-72.
cornutus, *Podiceps*, 94.
Coturnicops noveboracensis, 280-81.
 Coues, cited, 133, 167, 192, 375.
 County schedules, 80-87.
 Cowbird, 12, 38, 46, 54, 62, 63, 64, 72.
 Coween, 214.
 Crane, 90, 174, 267-68.
 sandhill, 18, 269.
 white, 256.
 whooping, 18, 239, 268.
crecca, Anas, 191.
 Nettion, 191-92.
Creciscus jamaicensis, 281-82.
 Creeper, brown, 12, 41, 42, 48, 63, 64; breeding range, 29.
crepitans, *Rallus*, 272-73.
Crex crex, 282-83; figure, 283.
 galeata, 284.
crex, *Rallus*, 282.
cristatus, *Podiceps*, 92.
 Crossbill, 35, 46.
 American, 12, 39.
 white-winged, 12, 39.
 Crow, 45, 53, 54, 60, 62, 63, 64, 71.
 American, 11, 38.
 fish, 12, 38.
 Crow bill, 288.
 Crow duck, 288.
 Cuckoo, 44, 54, 90.
 black-billed, 13, 37, 64.
 yellow-billed, 13, 37.
Cuculiformes, 89, 90.
cucullatus, *Lophodytes*, 181-82.
 Mergus, 181.
cupido, *Tetrao*, 376.
 Tympanuchus, 376-77.
 Curlew, 322.
 big, 338.
 Eskimo, 15, 341-42.
 European, 18, 342-44; figure, 343.
 Hudsonian, 15, 339-40.
 jack, 339.

- Curlew, long-billed, 15, 338-39, 342.
 short-billed, 340.
 sickle-bill, 360.
Cutwater, 153.
cyanoptera, *Anas*, 195.
 Querquedula, 195-96.
Cygnae, 177.
Cygnus americanus, 236.
 buccinator, 239.
Cymophilus fulcarius, 289.
- Dabchick**, 96.
Dafila acuta, 197-99.
Darters, 165.
Davison, James L., cited, 78, 126, 165, 238, 257.
Day, cited, 164.
Dean, cited, 330.
deglandi, *Oidemia*, 222-23.
De Kay, cited, 76, 111, 141, 174, 293.
delawarensis, *Larus*, 130-32.
delicata, *Gallinago*, 300-3.
 Scolopax, 300.
Dendragapus canadensis, 365.
Dendroica tigrina, 59-60.
De Vries, cited, 268, 377, 380, 382.
Dexter, cited, 235.
Dickcissel, 14.
Didapper, 96.
Diedapper, 212.
dilophus, *Phalacrocorax*, 171.
Diomedidae, 154.
Dipper, 95, 96, 212.
 broad-billed, 226.
discors, *Anas*, 194.
 Ardea, 264.
 Querquedula, 194-95.
Diver, 100.
 black-throated, 102.
 great northern, 100.
 lobe-footed, 92.
 pink-eyed, 95.
- Diver, red-throated, 103.
Diving birds, 91.
dominicus, *Charadrius*, 346-48.
dougalli, *Sterna*, 147.
Dough-bird, 341.
Dove, ground, 17, 381, 389-90.
 little ground, 381.
 mourning, 13, 37, 62, 64, 381, 386-88;
 figure, 387; figure of nest and eggs,
 388.
Dovekie, 16, 111-12.
Dowitcher, 15, 303-5; figure, 304.
 long-billed, 15, 305-6; figure, 304.
dresseri, *Somateria*, 218-19.
Duck, 52, 53, 55, 68, 70, 177.
 American eider, 218-19.
 baldpate, 188, 190-91, 198, 199.
 bay, 201-2.
 black, 12, 36, 184, 185-87, 191, 193,
 198, 199, 203, 205.
 buffle-headed, 211-13.
 butter, 226.
 canvasback, 202, 203-5.
 chunk, 226.
 common wild, 184.
 deaf, 226.
 dumpling, 226.
 dusky, 186.
 gray, 188.
 green-head, 184.
 green-wing, 195.
 harlequin, 16, 214-16.
 king eider, 220-21.
Labrador, 16, 216-18; figure, 217.
 long-tailed, 214.
 mallard, 183-85, 187, 193, 199.
 muscovy, 184.
 pied, 216.
 pintail, 184, 188, 191, 193, 197-99, 213.
 redhead, 202-3, 204, 205, 223.
 red-legged black, 16.
 ring-necked, 15, 207-8.

- Duck, river, 177, 182-83, 201, 202.
 ruddy, 15, 36, 212, 225-26.
 rufous-crested, 18, 202.
 sand-shoal, 218.
 scaup, 52, 205-6, 223.
 lesser, 206-7.
 sea, 177, 182, 201-2.
 shoveler, 182, 188, 194, 196-97.
 skunk, 216.
 spirit, 212.
 stiff-tailed, 177.
 summer, 200.
 velvet, 223.
 wood, 13, 36, 43, 56, 177, 182, 199-201.
- Duckling, 55.
- Dunghunters, 113.
- Dunlin, 18, 314-15, 316, 318.
- Dutcher, William, acknowledgments to, 7; cited, 79, 102, 108, 110, 111, 112, 114, 115, 116, 117, 120, 123, 133, 136, 138, 139, 149, 150, 156, 157, 158, 164, 169, 174, 211, 215, 216, 218, 219, 221, 226, 227, 228, 229, 230, 235, 237, 238, 243, 245, 257, 258, 260, 262, 267, 271, 277, 283, 284, 290, 292, 293, 295, 296, 305, 306, 309, 313, 316, 319, 321, 322, 329, 335, 338, 339, 342, 345, 347, 355, 356, 360, 377.
- Dwight, Jonathan, acknowledgments to, 7; cited, 122, 125, 127.
- Eagle**, 43.
 bald, 11, 37, 44.
 golden, 16.
- Eaton, Elon Howard, cited, 79, 257.
- Ectopistes carolinensis, 386.
 migratorius, 381-86.
- Edson, John M., cited, 78.
- Egret, American, 17, 256-57.
- Egretta candidissima, 257-58.
 ruficollis, 258.
- egretta, Ardea, 256.
- egretta, Herodias, 256-57.
- Eider, American, 16, 218-19, 220.
 king, 16, 219, 220-21.
- elegans, Rallus, 271-72.
- Elliot, cited, 123.
- Emboly, G. C., cited, 79.
- Ereunetes mauri, 318-19.
 occidentalis, 318; figure of bill, 318.
 pusillus, 317-18; figure of bill, 318.
- Erismatura jamaicensis, 225-26.
 rubida, 225.
- Erismaturinae, 177, 226.
- Erolia ferruginea, 316; figure, 317.
- erythrocephala, Fuligula, 202.
- erythrorhynchus, Pelecanus, 172-74.
- European species, 18.
- exilis, Ardea, 250.
 Ardetta, 250.
 Ixobrychus, 250-53.
- Explanation of plates, 391-474.
- Falconiiformes**, 89, 90.
- fedoa, Limosa, 320-21.
 Scolopax, 320.
- ferruginea, Erolia, 316, 317.
 Tringa, 316.
- Finch, 54.
 green, 18.
 purple, 12, 39, 46, 62, 63, 64, 68.
- Fish, 55.
- Fish-hawk, 130.
- Fisher, A. K., acknowledgments to, 7; cited, 79, 245, 256.
- Flahive, cited, 309.
- flavipes, Scolopax, 325.
 Totanus, 325-26.
- flavirostris, Phaëthon, 166.
- Fleming, J. H., cited, 103, 108, 109, 215, 239, 385.
- Flicker, 44, 51, 54, 60, 62, 63, 64, 72, 276.
 northern, 12, 38.

- Florida caerulea*, 259-62; figures, 260, 261.
 Fly-up-the-creek, 263.
 Flycatcher, 50, 68.
 alder, 11, 14, 38, 45, 62, 64; breeding range, 20.
 crested, 13, 38, 44, 62, 63, 64, 72.
 green-crested, 14, 38; breeding range, 21.
 least, 13, 38, 45, 60, 62, 63, 64.
 olive-sided, 14, 38, 45; breeding range, 21.
 yellow-bellied, 14, 38, 45, 64; breeding range, 21.
forsteri, *Sterna*, 142-43.
 Foster, L. S., cited, 219, 282.
 Fowler, Gilbert, cited, 77, 149, 189, 238, 384.
Fratercula arctica, 105-6.
Fregata aquila, 176; figure, 175.
 Fregatidae, 175.
 Frigate-birds, 166.
 Fringillidae, 46.
 Frost bird, 348.
 Fuertes, L. A., cited, 243.
Fulica americana, 286-88.
 martinica, 283.
 noveboracensis, 280.
fulicaria, *Tringa*, 289.
fulicarius, *Cymophilus*, 289.
 Phalaropus, 289-90.
Fuligula affinis, 206.
 albeola, 211.
 americana, 202, 221.
 clangula, 208.
 erythrocephala, 202.
 fusca, 222.
 glacialis, 213.
 histrionicus, 214.
 labradoria, 216.
 marila, 205.
 minor, 206.
Fuligula molissima, 218.
 perspicillata, 224.
 rubida, 225.
 rufitorques, 207.
 spectabilis, 220.
 vallisneria, 203.
 Fuligulinae, 177, 201-2.
 Fuller, cited, 384.
 Fulmar, 154.
 tropical, 76.
 Fulmarinae, 154.
Fulmarus glacialis, 154.
fusca, *Fuligula*, 222.
fuscata, *Sterna*, 149.
fuscicollis, *Pisobia*, 311, 312.
 Tringa, 311.
fuscus, *Pelecanus*, 174.
 Fute, 341.
Gadwall, 15, 187-89.
galeata, *Crex*, 284.
 Gallinula, 284-86.
 Galliformes, 89, 90, 360.
 Gallinaceous birds, 360.
 Gallinae, 89, 90, 176, 360.
Gallinago delicata, 300-3.
Gallinula galeata, 284-86.
Gallinule, 57, 62, 65, 270-71.
 American, 285.
 Florida, 14, 36, 64, 284-86.
 purple, 17, 283-84.
gallopavo, *Meleagris*, 379.
gallopavo silvestris, *Meleagris*, 379-80.
gambeli, *Anser*, 229.
 Gannets, 16, 167-68, 169.
 Garrot, 209.
Gavia alba, 120.
 arctica, 102-3.
 immer, 99-102.
 stellata, 103-4.
 Gaviidae, 98-99.
 Geese, 90, 177, 182.

- Gelocheidon, 119.
 nilotica, 137-38.
 Gilbert, John, cited, 282.
 Giraud, J. P., cited, 75, 111, 137, 142, 189, 259, 290, 293.
 glacialis, Colymbus, 99.
 Fuligula, 213.
 Fulmarus, 154.
 Procellaria, 154.
 Glaucionetta clangula americana, 208.
 islandica, 210.
 glaucogastra, Branta, 233.
 glaucus, Larus, 122.
 Gleason, cited, 384.
 Gnatcatcher, 32.
 blue-gray, 14, 41.
 Godwit, Hudsonian, 15, 321-22.
 marbled, 15, 320-21, 322.
 Golden-eye, American, 12, 36, 208-10.
 barrow, 16, 210-11; figure, 211.
 Goldfinch, 55, 62, 63.
 American, 11, 39, 46, 64.
 European, 12.
 Goosander, 178.
 Goose, American white-fronted, 229-30.
 barnacle, 18, 235-36; figure, 235.
 blue, 15, 226, 228-29, 230.
 blue snow, 229.
 blue wavy, 229.
 blue-winged, 229.
 Canada, 17, 230-32, 233, 234.
 ember, 99, 100.
 greater snow, 15, 226, 227-28.
 Hutchins, 15, 232-33.
 lesser snow, 18, 226-27.
 mud, 233.
 Solan, 169.
 white-fronted, 15.
 white-headed, 229.
 wild, 231.
 Goshawk, 37, 43, 53, 363, 364, 373.
 American, 12.
 Grackle, 65.
 bronzed, 13, 39, 46, 62, 63, 64.
 purple, 14, 39.
 Grassfinch, 63.
 gravis, Procellaria, 156.
 Puffinus, 156-57.
 Great-head, 209.
 Grebe, 53, 90, 91-92.
 crested, 75-76.
 Holboell, 16, 92-94.
 horned, 16, 93, 94-96.
 pied-billed, 13, 36, 43, 62, 64, 96-98.
 western, 92.
 Green, Morris M., cited, 292, 313.
 Green-back, 348.
 Greenland dove, 111.
 Gregg, William H., cited, 79, 218.
 Grey-back, 307.
 Grinnell, cited, 153, 282.
 grisea, Procellaria, 158.
 Scolopax, 303.
 griseus, Macrorhamphus, 303-5.
 Puffinus, 158-59.
 griseus scolopaceus, Macrorhamphus, 304.
 Grosbeak, blue, 17.
 evening, 16.
 pine, 16.
 rose-breasted, 13, 39, 46, 62, 64.
 Grouse, 51, 53, 56, 57, 299, 364.
 black, 377.
 Canada, 13, 37, 71, 365-66.
 Canadian ruffed, 13, 37, 42, 367, 373-74.
 cock, 55.
 pinnated, 376.
 red, 364.
 ruffed, 11, 37, 50, 63, 364, 366-73; figures, 368, 372; figure of nest and eggs, 370.
 spotted, 365.
 spruce, 35, 365-66.
 Grues, 267.

- Gruidae, 267-68.
 Gruiformes, 89, 90, 267.
 Grus americana, 268, 269.
 mexicana, 269.
 grylle, Alca, 106.
 Cepphus, 106.
 Uria, 106.
 Guara alba, 242; figure, 241.
 guarauna, Plegadis, 243-44.
 Scolopax, 243.
 Guillemot, 105.
 black, 18, 106.
 mandt, 106-7.
 thick-billed, 107.
 Gulls, 90, 119-20.
 Arctic hawk, 116.
 black-headed, 133.
 black-toed, 116.
 Bonaparte, 16, 62, 119, 121, 131, 134-35.
 glaucous, 16, 122-23, 126.
 great black-backed, 16, 119, 125-26.
 herring, 12, 36, 43, 62, 127-30, 131, 132, 135.
 Hutchins, 76.
 ice, 123.
 Iceland, 16, 123-24; 127.
 ivory, 18, 120.
 Kumlien, 16, 124-25, 127, 128.
 laughing, 14, 36, 132-34.
 little, 18, 135-36.
 ring-billed, 16, 62, 127, 128, 130-32.
 Sabine, 15, 119, 136-37.
 white-winged, 123.
 winter, 129.
 Gyrfalcon, 16, 53.
 black, 16.
 white, 18.
 haemastica, Limosa, 321-22.
 Scolopax, 321.
 Haematopodidae, 358.
 Haematopus palliatus, 359-60; figure, 359.
 Hagdon, black, 159.
 Hairy-head, 181.
 Hand-rail, 283.
 Hardy, cited, 330.
 Harelda hyemalis, 213-14.
 hasitata, Aestrelata, 160.
 Procellaria, 160.
 Hawk, 43, 50, 51, 53, 68, 70, 90.
 American rough-legged, 16.
 American sparrow, 12, 64.
 broad-winged, 13, 37, 43, 62, 64.
 cooper, 12, 37, 43, 363, 364, 373.
 duck, 13, 37, 43, 53.
 goshawk, 37, 43.
 marsh, 12, 37, 64.
 night, 13, 64.
 pigeon, 14, 37, 43, 64.
 red-shouldered, 12, 37, 43.
 red-tailed, 12, 37, 43, 62, 63, 68.
 sharp-shinned, 12, 37, 43, 53, 62, 64, 364.
 sparrow, 37, 43.
 Swainson, 18.
 Hawley, G., cited, 382.
 Heart-bird, 358.
 Heath hen, 12, 299, 376-77; figure, 376.
 Hell-divers, 92, 95, 96.
 Helme, cited, 284.
 Helodromas ochropus, 327.
 solitarius, 326-28.
 helvetica, Squatarola, 345.
 Hemipalma himantopus, 306.
 Hemipodes, 289.
 Hen bill, 288.
 Hens, 90.
 Henshaw, H. W., cited, 313.
 Herodias egretta, 256-57.
 herodias, Ardea, 253-56.
 Herodiones, 89, 90, 240.

- Heron, 50, 53, 90, 182, **240, 245-46**.
 black-crowned night, 13, 36, **264-65**.
 great blue, 13, 36, 43, **253-56**, 269; figure of nest and eggs, 255.
 green, 13, 36, 63, **262-64**; figure of nest and eggs, 263; figure of young, 264.
 little blue, 17, **259-62**; figures, 260, 261.
 Louisiana, 17, **258-59**; figure, 259.
 snowy, 14, **257-58**, 259.
 white, 256.
 yellow-crowned night, 17, **265-67**; figure, 266.
 Heteropoda semipalmata, 317.
 Hickory-head, 226.
 Highlands, Hudson, list of birds of, 77.
 Himantopodidae, **295**.
 Himantopus mexicanus, **295-96**; figure, 296.
 nigricollis, 295.
 himantopus, Hemipalma, 306.
 Micropalama, **306-7**.
 Tringa, 306.
 hirundo, Sterna, **143-45**.
 histrionica, Anas, 214.
 Histrionicus histrionicus, **214-16**.
 histrionicus, Fuligula, 214.
 holboellii, Colymbus, **92-94**.
 Podiceps, 92.
 Holopodius wilsoni, 292.
 Hopkins, William, cited, 243, 256, 290.
 Hough, cited, 237.
 Howell, G. W., acknowledgments to, 7; cited, 293.
 Hudson Highlands, list of birds of, by Edgar A. Mearns, 77.
 Hudsonian zone, 19.
 hudsonica, Limosa, 321.
 hudsonicus, Numenius, **339-40**.
 Hummingbird, 44, 56, 64, 72.
 ruby-throated, 13, 38, 63.
 hutchinsii, Anser, 232.
 Larus, 122, 123.
 Hydranassa tricolor ruficollis, **258-59**; figure, 259.
 Hydrochelidon nigra surinamensis, **149-52**; figure, 151.
 Hydroka carolinensis, 96.
 hyemalis, Anas, 213.
 Clangula, 213.
 Harelda, **213-14**.
 hyperborea, Chen, 226.
 hyperborea, Chen, **226-27**.
 nivalis, Chen, **227-28**.
 hyperboreus, Anser, 226, 227.
 Larus, 119, **122-23**, 124, 127.
 Lobipes, 291.
 Ibisidae, **240**.
 Ibis, **240**.
 glossy, 17, **242-43**; figure, 243.
 white, 17, **242**; figure, 241.
 white-faced glossy, 17, **234-44**; figure, 244.
 wood, 17, **244-45**; figure, 245.
 Ibis alba, 242.
 mexicanus, 242.
 Ice bird, 111.
 imber, Urinator, 99.
 immer, Colymbus, 99.
 Gavia, **99-102**.
 Indigo bird, 13, 46, 63.
 interpres Strepsilas, 357.
 Tringa, 357.
 interpres morinella, Arenaria, **357-58**.
 Ionornis martinica, **283-84**.
 islandica, Anas, 210.
 Clangula, **210-11**.
 Glaucionetta, 210.
 Ixobrychus exilis, **250-53**; figure, 251.
 neoxenus, **253**.
 Jaeger, 113.
 Arctic, 118.
 buffon, 118.

- Jaeger, long-tailed, 15, 117-19.
 parasitic, 15, 76, 116-17, 118.
 pomarine, 15, 114-16.
 Richardson, 116.
jamaicensis, Anas, 225.
Creciscus, 281-82.
Erismatura, 225-26.
 Porzana, 281.
 Rallus, 281.
 Jay, 51, 53, 54.
 blue, 11, 38, 42, 45, 63, 64, 68.
 Canada, 13, 35, 38, 45.
 Johnson, cited, 126, 385.
 Judd, cited, 385, 386.
 Junco, 12, 39, 46, 47, 62, 64, 65; breeding
 range, 23.
 Carolina, 14.
 Kicker, 282.
 Killdeer, 13, 37, 51, 63, 348-52; figure,
 349; figure of nest and eggs, 351.
 Kingbird, 13, 38, 44, 53, 62, 63, 64, 68, 72.
 Arkansas, 18.
 gray, 17.
 Kingfisher, 44, 62, 63, 68, 90, 130, 263.
 belted, 12, 38, 64.
 Kinglet, golden-crowned, 12, 41, 49, 63.
 ruby-crowned, 16, 41, 49, 50, 63, 64.
 Kirkover, cited, 243.
 Kite, swallow-tailed, 17.
 Kittiwake, 16, 121-22, 134.
 Knot, 15, 307-8.
 Kobbe, cited, 322.
 Kreeker, 310.
 Krieker, 310.
kumlieni, *Larus*, 124-25.
labradoria, Anas, 216.
Fuligula, 216.
labradorius, *Camptolaimus*, 216.
Camptorhynchus, 216-18.
Lagopus lagopus, 375-76; figures, 374, 375.
lagopus, Tetrao, 375.
 Lamellirostral swimmers, 176-77.
 Langdon, cited, 170.
 Langille, J. H., cited, 78, 293.
 Lapwing, 18, 344-45; figure, 344.
 Laridae, 119-20.
 Lariformes, 89, 90, 112.
 Lark, horned, 16, 63.
 Hoyt horned, 18.
 prairie horned, 11, 12, 38, 45, 62, 69.
Larus albus, 120.
 arcticus, 122.
 argentatus, 127-30.
 smithsonianus, 127.
 atricilla, 132-34.
 bonapartii, 134.
 delawarensis, 130-32.
 glaucus, 122.
 hutchinsii, 122, 123.
 hyperboreus, 119, 122-24, 127.
 kumlieni, 124-25.
 leucopterus, 123-24, 125.
 marinus, 119, 125-26.
 minutus, 135-36; figure, 136.
 parasiticus, 116.
 philadelphia, 134-35.
 pomarinus, 114.
 sabinii, 136.
 tridactylus, 121.
 zonorhynchus, 130.
 Lawrence, George N., cited, 76, 103, 111,
 141, 160, 236, 330.
 Lawrence, N. T., cited, 115, 116, 143, 153,
 189, 260, 291, 293, 306, 309, 312, 335,
 338, 342, 356.
 Lawrence, R. B., cited, 111, 282, 290, 292,
 360.
 Lawyer, 296.
 leachi, *Thalassidroma*, 163.
 Lead-back, 318.
 Lee, cited, 169.
lentiginosa, *Ardea*, 246.

- lentiginosus*, *Botaurus*, 246-50.
Lestris buffoni, 117, 119.
 parasiticus, 76, 118.
 pomarinus, 114.
 richardsoni, 76, 116, 119.
leuce, *Ardea*, 256.
leucogaster, *Pelecanus*, 168.
 Sula, 168-69.
leucophaea, *Calidris*, 319-20.
leucopsis, *Anas*, 235.
 Branta, 235-36.
leucopterus, *Larus*, 119, 123-24, 125.
leucorhoa, *Oceanodroma*, 163-64.
 Procellaria, 163.
Lewis county birds, 77.
lherminieri, *Puffinus*, 158.
Lice, attacks of, on birds, 56.
Life zones of New York State, 19-24.
Limicolae, 89, 90, 112, 288-89.
Limosa fedoa, 320-21.
 haemastica, 321-22.
 hudsonica, 321.
 scolopacea, 305.
Linden, cited, 230.
Linnet, European, 18.
Linnett, cited, 221.
Little peep, 313.
lobata, *Tringa*, 291.
lobatus, *Lobipes*, 291-92.
 Phalaropus, 291.
Lobipes hyperboreus, 291.
 lobatus, 291-92.
Local lists, 75-80.
loculator, *Tantalus*, 244.
lomvia, *Alca*, 107.
 Uria, 107-8.
longicaudus, *Stercorarius*, 117-19.
Long Island, birds of, by J. P. Giraud jr, 75; by William C. Braislin, 80; by William Dutcher, 79.
longicauda, *Bartramia*, 331-34.
 Tringa, 331.
Longipennes, 89, 90, 112.
longirostris, *Numenius*, 338.
Longshanks, 296.
Longspur, 56.
 chestnut-collared, 18.
 Lapland, 16.
Loon, 12, 36, 62, 64, 90, 98-99.
 big, 100.
 black-throated, 18, 99, 102-3.
 common, 99-102, 104.
 red-throated, 16, 99, 100, 103-4.
 sprat, 103.
Lophodytes cucullatus, 181-82.
Lower Austral zone, 19.
ludoviciana, *Ardea*, 258.
lumme, *Urinator*, 103.
Lyrurus tetrax, 377.
McIlwraith, cited, 335.
Mackay, cited, 308, 348.
Macrochires, 89, 90.
Macrorhamphus griseus, 303-5; figure, 304.
 scolopaceus, figure, 304.
 scolopaceus, 305-6.
macroura, *Zenaidura*, 386.
 carolinensis, *Zenaidura*, 386-88.
macularia, *Actitis*, 335-38.
 Totanus, 335.
 Tringa, 335.
maculata, *Actodromas*, 311.
 Pisobia, 309-10, 312.
 Tringa, 309.
Madison county, birds of, by George Charles Embury, 79.
Magpie, 76.
major, *Puffinus*, 156, 159.
Mallard, 15, 36, 183-85, 187, 193, 199.
 green-backed, 76, 184.
mandti, *Cephus*, 106-7.
Man-o'-war bird, 17, 175, 176; figure, 175.
Mareca americana, 190-91.

- Mareca penelope*, 189.
Marila affinis, 206-7.
 americana, 202-3.
 collaris, 207-8.
 marila, 205-6.
 vallisneria, 203-5.
marila, *Anas*, 205.
 Aythya, 205.
 Fuligula, 205.
marila nearctica, *Aythya*, 205.
marinus, *Larus*, 119, 125-26.
maritima, *Arquatella*, 308-9.
 Tringa, 308.
Marlin, brown, 321.
 ring-tailed, 322.
Marling-spike, 116.
Marsh birds, 50, 55, 267.
Marsh hen, salt water, 273.
Marshall, cited, 342.
Marten, 55.
Martin, 56, 65, 68.
 purple, 13, 39.
martinica, *Fulica*, 283.
 Ionornis, 283-84.
mauri, *Ereunetes*, 318-19.
maxima, *Anas*, 184.
 Sterna, 139-40.
Maxon, William R., cited, 80.
Maynard, cited, 167.
Meadow hen, 288.
Meadowlark, 12, 39, 46, 51, 53, 55, 62, 63, 64, 65.
Mearns, Edgar A., cited, 77, 123, 149.
Megalestris skua, 113-14.
Megapolensis, J., cited, 377, 380.
melanoleuca, *Scolopax*, 323.
melanoleucus, *Totanus*, 323-24.
Meleagridae, 379.
Meleagris gallopavo, 379.
 silvestris, 379-80.
 silvestris, 379.
meloda, *Aegialitis*, 354-55.
melodus, *Charadrius*, 354.
Merganser, 177.
 American, 12, 36, 43, 177-79.
 hooded, 13, 36, 181-82, 212.
 red-breasted, 12, 36, 43, 62, 178, 179-80.
Merganser americanus, 177.
 serrator, 179.
merganser, *Mergus*, 177.
Merginae, 177.
Mergulus alle, 111.
Mergus americanus, 177-79.
 cucullatus, 181.
 merganser, 177.
 serrator, 179-80.
Merriam, C. Hart, acknowledgments to, 6; cited, 19, 34-35, 77, 123, 149, 169, 291, 376.
Mershon, cited, 385, 386.
mexicana, *Ardea*, 269.
 Grus, 269.
mexicanus, *Charadrius*, 295.
 Himantopus, 295-96.
 Ibis, 242.
Micropalama himantopus, 306-7.
Migration, 65-72.
migratoria, *Columba*, 381.
migratorius, *Ectopistes*, 381-86.
Miller, acknowledgments to, 7; cited, 109.
Mink, 55.
minor, *Ardea*, 246.
 Fuligula, 206.
 Philohela, 297-300.
 Rusticola, 297.
 Scolopax, 297.
Minot, H. D., cited, 77.
minuta, *Sterna*, 148.
minutilla, *Actodromas*, 313.
 Pisobia, 313-14.
 Tringa, 313, 317.
minutus, *Larus*, 135-36.

- Mockingbird, 12, 41.
 mollissima, Fuligula, 218.
 Moran, Daniel E., cited, 312.
 Mormon arcticus, 105.
 Mother Carey's chickens, 154, 165.
 Mt Marcy region, 42-50.
 Mud hens, 270, 273, 288.
 little, 274.
 red-billed, 285.
 white-billed, 288.
 Munsell, cited, 174.
 Murre, 107.
 Brünnich, 16, 107-8.
 common, 76.
 Mycteria americana, 244-45; figure, 245.

 naevia, Ardea, 264.
 neoxenus, Ixobrychus, 253.
 Netta rufina, 202.
 Nettion carolinensis, 192-93.
 crecca, 191; figure, 192.
 New York city, birds of New York city
 and vicinity, by George N. Lawrence,
 76; list of birds known to occur within
 fifty miles of, by Frank M. Chapman,
 78.
 Niagara county, birds of, by James L.
 Davison, 78.
 Nighthawk, 38, 44.
 nigra, Rynchops, 152-53.
 Sterna, 149, 152.
 nigra surinamensis, Hydrochelidon, 149-
 52.
 nigricans, Anser, 234.
 Branta, 234-35.
 nigricollis, Himantopus, 295.
 nilotica, Gelochelidon, 137-38.
 Sterna, 137.
 nivalis, Anas, 227.
 Noddy, 154.
 Northern species, 18.
 Notebooks, 58.

 noveboracensis, Coturnicops, 280-81.
 Fulica, 280.
 Ortygometra, 280.
 Porzana, 280.
 Scolopax, 303.
 Numenius americanus, 338-39.
 arquatus, 342-44; figure, 343.
 borealis, 341-42.
 hudsonicus, 339-40.
 longirostris, 338.
 Nuthatch, brown-headed, 17.
 red-bellied, 12, 42, 49.
 red-breasted, 41, 63, 64; breeding
 range, 30.
 white-bellied, 49.
 white-breasted, 11, 41, 63, 64.
 Nyctanassa violacea, 266-67; figure, 266.
 Nycticorax nycticorax naevius, 264-65.
 violaceus, 266.

 Oberholser, acknowledgments to, 7.
 obscura, Anas, 185.
 obscura rubripes, Anas, 185.
 obscurus, Puffinus, 158.
 Observers, list, 73-74, 80-86.
 occidentalis, Ereunetes, 318.
 oceanica, Procellaria, 164.
 oceanicus, Oceanites, 164-65.
 Oceanites oceanicus, 164-65; figure, 165.
 Oceanitinae, 162.
 Oceanodroma leucorhoa, 163-64; figure,
 163.
 ochropus, Helodromas, 327.
 Ochthodromus wilsonius, 356-57; figure,
 356.
 Odontophorinae, 361.
 Oidemia americana, 221-22.
 deglandi, 222-23.
 perspicillata, 224.
 Old-squaw, 16, 213-14, 220.
 Old wife, 214.
 Olor buccinator, 236, 239-40.

- Olor columbianus*, 236-39.
 Oneida county, birds of, by William L. Ralph and Egbert Bagg, 78.
 Onondaga county, birds of, by Morgan K. Barnum, 78.
 Oriole, 46, 63, 68, 70.
 Baltimore, 13, 34, 39, 46, 62, 64, 67; spring migration, 66.
 bullock, 18.
 orchard, 14, 33, 39, 46, 69; breeding range, 22.
 Ortolans, 279.
Ortygometra carolina, 276.
 noveboracensis, 280.
Ortyx virginiana, 361.
 Osprey, 43.
 American, 13, 37.
 Ovenbird, 14, 41, 42, 48, 63, 64.
 Owl, 43, 50, 51, 53, 90.
 American barn, 12.
 American hawk, 16.
 American long-eared, 11, 37.
 barn, 37.
 barred, 11, 37, 43.
 burrowing, 18.
 great gray, 16.
 great horned, 11, 37, 53, 373.
 Richardson, 16.
 saw-whet, 12, 37.
 screech, 11, 37, 62, 367.
 short-eared, 11, 37.
 snowy, 16, 53.
 Oxeye, 313, 318.
 meadow, 314, 318.
 sand, 318, 320.
Oxyechus vociferus, 348-52; figure, 349; figure of nest and eggs, 351.
 Oyster-catcher, 358.
 American, 17, 359-60; figure, 359.
pacifica, *Pelidna*, 315.
 Paddy-whack, 226.
Pagophila alba, 120.
*palliatu*s, *Haematopus*, 359-60.
 Palmer, cited, 330.
Paludicolae, 89, 90, 267.
paradisaea, *Sterna*, 146.
 Parasites preying upon birds, 55.
parasiticus, *Larus*, 116.
 Lestris, 76, 118.
 Stercorarius, 116-17.
 Park, cited, 164, 283.
 Paroquet, Carolina, 12, 76.
 Parrots, 90.
 Partridge, 367, 377.
 American, 361.
 European, 378.
 Hungarian, 378.
 spruce, 365.
Passeres, 89, 90.
Passeriformes, 89, 90.
passerina terrestris, *Columbigallina*, 389-90.
Pavoncella pugnax, 330.
 Payne, G. E., cited, 290.
pectoralis, *Tringa*, 309.
 Peep, 318.
 little, 313.
pelagica, *Thalassidroma*, 162.
Pelecanidae, 172.
Pelecaniformes, 89, 90, 165.
Pelecanoididae, 154.
Pelecanus aquilus, 176.
 bassanus, 169.
 carbo, 170.
 erythrorhynchos, 172-74; figure, 173.
 fuscus, 174.
 leucogaster, 168.
 Pelican, 90, 172.
 American white, 172-74; figure, 173.
 brown, 17, 174.
 white, 15, 239.
Pelidna alpina alpina, 314-15.
 sakhalina, 315-16.

- Pelidna pacifica*, 315.
penelope, Anas, 189.
 Mareca, 189.
 Perching birds, 90.
Perdix cinerea, 378.
 Peristeridae, 381.
perspicillata, Anas, 224.
 Fuligula, 224.
 Oidemia, 224.
 Petrel, 90, 154.
 black-capped, 17, 160.
 diving, 154.
 forked-tail, 163.
 leach, 15, 163-64; figure, 163.
 least, 162.
 little stormy, 76.
 scaled, 17, 160-62; figure, 161.
 stormy, 18, 154, 162, 165; figure, 162.
 Wilson, 17, 162, 164-65; figure, 165.
 Pewee, wood, 13, 38, 45, 63, 64, 68.
Phaëthon americanus, 166-67; figure, 167.
 flavirostris, 166.
 Phaëthontidae, 166.
 Phalacrocoracidae, 170.
Phalacrocorax auritus, 171-72.
 carbo, 170.
 dilophus, 171.
 Phalarope, 289, 294.
 northern, 15, 291-92.
 red, 15, 289-90.
 red-necked, 291.
 Wilson, 15, 292-93.
 Phalaropidae, 289.
Phalaropus fulicarius, 289-90.
 lobatus, 291.
 tricolor, 292.
 Phasianidae, 377.
Phasianus colchicus, 378.
 torquatus, 378.
 Pheasant, 52, 63, 367, 377.
 English, 12, 378.
 Pheasant, Mongolian, 378.
 ring-necked, 12, 64, 378.
 water, 181.
philadelphia, *Larus*, 134-35.
 Sterna, 134.
Philohela minor, 297-300; figure of nest and eggs, 299.
 Phoebe, 13, 38, 45, 55, 60, 62, 63, 64, 68, 72.
 Pici, 89, 90.
 Piciformes, 89, 90.
 Pickerel, 55.
 Pigeon, 70, 90, 380.
 passenger, 13, 299, 381-86, 387.
 Pigeon hawk, 53.
 Pike, 55.
 Pintail, 15, 184, 188, 191, 193, 197-99, 213.
 Pipit, American, 16.
Pisobia bairdi, 312-13.
 cooperi, 312.
 fuscollois, 311, 312.
 maculata, 309-10, 312.
 minutilla, 313-14.
 Plates, explanation of, 391-474.
platyrhynchos, Anas, 183-85.
 Plectropterinae, 177.
Plegadis autumnalis, 242-43; figure, 243.
 guarauna, 243-44; figure, 244.
 Plover, 70, 90, 288-89, 322, 326, 343.
 American golden, 16, 346-48.
 beach, 358.
 black-bellied, 15, 345-46, 358.
 bull-head, 346.
 golden, 289, 341, 346.
 gray, 346.
 killdeer, 348-52; figure, 349; figure of nest and eggs, 351.
 piping, 14, 37, 354-55; figure, 354.
 semipalmated, 16, 352-53.
 upland, 289, 331, 332, 333, 341.
 whistling, 71, 346, 358.
 Wilson, 17, 356-57; figure, 356.

- Pochard, 203.
Podiceps cornutus, 94.
 cristatus, 92.
 holboellii, 92.
 rubricollis, 92.
podiceps, *Colymbus*, 96.
 Podilymbus, 96-98.
Podicipediformes, 89, 90, 91.
Podilymbus podiceps, 96-98.
pomarinus, *Larus*, 114.
 Lestris, 114.
 Stercorarius, 114-16.
 Porter, cited, 124, 125.
Porzana carolina, 276-80; figure, 277;
 figure of nest and eggs, 278.
 jamaicensis, 281.
 noveboracensis, 280.
 Posson, Neil F., cited, 109, 139, 233, 243,
 257, 313, 335, 340.
 Prairie hen, 364, 376.
Procellaria glacialis, 154.
 gravis, 156.
 grisea, 158.
 hasitata, 160.
 leucorhoa, 163.
 oceanica, 164.
 puffinus, 157.
Procellariidae, 162.
Procellariiformes, 89, 90, 153.
Psittaci, 89, 90.
Psittaciformes, 89, 90.
Ptarmigan, 364.
 willow, 18, 375-76; figure, 374, 375.
Puffin, 16, 105-6.
 Cinereus, 157.
Puffinidae, 154.
Puffininae, 154.
Puffinus auduboni, 158.
 borealis, 155-56; figure, 155.
 cinereus, 156.
 gravis, 156-57; figure, 157.
 griseus, 158-59; figure, 159.
Puffinus lherminieri, 158; figure, 158.
 major, 156, 159.
 obscurus, 158.
 puffinus, 157.
 stricklandi, 158.
puffinus, *Procellaria*, 157.
pugnax, *Pavoncella*, 330.
 Tringa, 330.
Purre, 316.
pusilla, *Tringa*, 313, 317.
pusillus, *Ereunetes*, 317-18.
Pygopodes, 89, 90, 91.
Quail, 50, 361, 377.
 sea, 358.
Quawk, 265.
Querquedula cyanoptera, 195-96; figure,
 196.
 discors, 194-95.
Rail, 51, 55, 57, 70, 90, 267, 270-71, 279.
 black, 17, 271, 282.
 Carolina, 36, 64, 276-80.
 clapper, 14, 36, 271, 272-73.
 king, 14, 36, 271-72, 274.
 little black, 281-82.
 Virginia, 13, 36, 64, 270, 271, 274-76;
 figure, 274; figure of nest and eggs,
 275.
 yellow, 15, 280-81, 282.
Ralli, 267.
Rallidae, 270-71.
Ralliformes, 89, 90, 267.
Rallus carolinus, 276.
 crepitans, 272-73.
 crex, 282.
 elegans, 271-72.
 jamaicensis, 281.
 virginianus, 274-76; figures, 274, 275.
 Ralph, William L., cited, 78, 117, 238,
 257, 293, 356.
Raptores, 89, 90.

- Rathbun, Frank R., cited, 77, 189, 238.
 Rathbun, Samuel F., cited, 77, 189, 238.
 Raven, 45.
 northern, 13, 38.
Recurvirostra americana, 294-95; figure, 294.
Recurvirostridae, 293-94.
 Red-head, 16, 202-3, 204, 205, 223.
 Redpoll, 16.
 greater, 16.
 hoary, 18.
 holboell, 16.
 Redstart, 41, 48, 63, 64.
 American, 14.
 Reffeix, cited, 382.
 Residents, 11-13.
 Rich, cited, 143.
richardsonii, Lestris, 76, 116, 119.
 Richmond, acknowledgments to, 6.
 Ridgway, acknowledgments to, 6; cited, 89, 137, 142, 202, 282.
 Riley, acknowledgments to, 6.
 Ring-bill, 208.
 Ring-neck, American, 353.
 pale, 354.
Rissa tridactyla, 121-22.
 Roberts, T. S., cited, 56.
 Robin, 12, 42, 49, 53, 54, 63, 64, 65, 68, 70, 71, 72.
 Roosevelt, Theodore jr, cited, 77.
Rostratula, 289.
rubida, *Erismatura*, 225.
 Fuligula, 225.
rubricollis, *Podiceps*, 92.
rubripes, *Anas*, 185-87.
rufescens, *Tringa*, 334.
 Ruff, 18, 330.
ruficollis, *Egretta*, 258.
rufina, *Anas*, 202.
 Netta, 202.
rufitorques, *Fuligula*, 207.
Rusticola minor, 297.
rusticola, *Scolopax*, 296.
Rynchopidae, 152.
Rynchops nigra, 152-53.
sabini, *Xema*, 136-37.
sabinii, *Larus*, 136.
 Saddle-back, 126.
 Sanderling, 15, 319-20, 358.
 Sand-peep, 314.
 Sandpiper, 302, 358.
 baird, 15, 312-13.
 Bartramian, 13, 37, 51, 331-34, 350;
 breeding range, 20.
 black-bellied, 316.
 Bonaparte, 311.
 buff-breasted, 15, 334-35.
 Cooper, 76, 312.
 curlew, 18, 316; figure, 317.
 green, 327.
 least, 15, 313-14, 318.
 pectoral, 15, 309-10, 314, 336.
 purple, 16, 308-9.
 red-backed, 15, 314, 315-16, 320.
 red-breasted, 307.
 rock, 309.
 Schinz, 311.
 semipalmated, 15, 313, 317-18.
 solitary, 14, 37, 63, 70, 326-28.
 spotted, 13, 37, 43, 62, 63, 64, 68, 72, 263, 327, 335-38, 350; figure of nest and eggs, 337.
 stilt, 15, 306.
 western, 15, 318-19.
 white-rumped, 15, 311.
sandvicensis acuflavida, *Sterna*, 140-41.
 Sapsucker, 44, 62, 68.
 yellow-bellied, 12, 38, 42, 44.
 Sargood, C., cited, 282.
 Savage, James H., cited, 123, 126, 139, 174, 239, 243, 290, 307.
 Sawbill, 43, 178, 180, 209.
scalaris, *Aestrelata*, 160-62.

- Scape-grace, 103.
 Scaup, greater, 17, 206.
 lesser, 17.
 schinzi, *Tringa*, 311.
 Scissor bill, 153.
 scolopacea, *Limosa*, 305.
 scolopaceus, *Macrorhamphus*, 305-6.
 Scolopacidae, 296.
 Scolopacinae, 296.
Scolopax alba, 242.
 arquatus, 342.
 borealis, 341.
 delicata, 300.
 fedoa, 320.
 flavipes, 325.
 grisea, 303.
 guarauna, 243.
 haemastica, 321.
 melanoleuca, 323.
 minor, 297.
 noveboracensis, 303.
 rusticola, 296.
 semipalmata, 328.
 wilsoni, 300.
 Scoter, American, 17, 221-22.
 surf, 17, 221, 224.
 white-winged, 17, 222-23, 224.
 Sea dove, 111.
 Sea-hawk, 113, 114.
 Sea parrot, 106.
 Sea pigeon, 106, 111.
 Sea swallow, 144, 145.
 semipalmata, *Aegialitis*, 352-53.
 Heteropoda, 317.
 Scolopax, 328.
 Symphemia, 328.
 semipalmatus, *Catoptrophorus*, 328-30.
 Charadrius, 352.
 Totanus, 328.
 semipalmatus *inornatus*, *Catoptropho-*
 rus, 330.
 Sennett, cited, 139, 238.
 septentrionalis, *Colymbus*, 103.
 serrator, *Merganser*, 179.
 Mergus, 179-80.
 Seton, cited, 215.
 Shag, 170.
 Sharpe, cited, 89.
 Shattuck, cited, 109.
 Shearwater, 153, 154.
 Audubon, 17, 157, 158; figure, 158.
 Cory, 17, 155-56, 159; figure, 155.
 dusky, 158.
 greater, 17, 156-57, 159; figure, 157.
 little, 158.
 Manx, 18, 76, 157.
 sooty, 17, 158-59; figure, 159.
 wandering, 157.
 Sheldrake, 178.
 Indian, 180.
 pied, 180.
 swamp, 181.
 Shitepoke, 263.
 Shore birds, decrease of species, 50.
 Short, Ernest H., cited, 79, 126.
 Shot-pouch, 226.
 Shoveler, 15, 182, 188, 194, 196-97.
 Shrike, 53.
 migrant, 11, 13, 40, 48, 62, 64, 69.
 northern, 16.
 Sickle-bill, 338.
 silvestris, *Meleagris*, 379.
 Sing Sing, birds of, by A. K. Fisher, 79.
 Siskin, pine, 12, 39, 46, 64.
 Skimmer, 152.
 black, 17, 152-53.
 Skua, 18, 113-14.
 skua, *Catharacta*, 113.
 Megalestris, 113-14.
 Skunk, 55.
 Skylark, 12.
 Sleepy-head, 226.
 Snake, black, 55.
 Snake birds, 165.

- Snipe, 51, 70, **288-89**, **296**, 326, 333.
 brown-back, 305.
 Deutscher, 305.
 Dowitcher, **303-5**.
 English, 302, 305.
 German, 305.
 grass, 310.
 gray-back, 305.
 horse-foot, 358.
 Jack, 302.
 painted, 289.
 quail, 305.
 red-breasted, 305.
 robin, 305, 307.
 surf, 320.
 Wilson, 14, 36, **300-3**, 304, 305, 310.
 winter, 309, 316.
 Snowflake, 16.
 Solitaire, Townsend, 18.
 solitarius, Helodromas, **326-28**.
 Tringa, 326.
 Somateria dresseri, **218-19**.
 spectabilis, **220-21**.
 Sora, 13, 62, 65, 273, 274, **276-80**; figure, 277; figure of nest and eggs, 278.
 Sorees, 279.
 South-southerly, 214.
 Southern species, 17.
 Spanish curlew, 242.
 Sparrow, 42, 50, 52, 53, 70.
 Acadian sharp-tailed, 16.
 Baird, 18.
 chipping, 13, 39, 46, 62, 64, 72.
 English, 46, 57, 60, 63, 64.
 field, 13, 39, 46, 62, 64, 65.
 fox, 16, 70.
 Gambel, 18.
 grasshopper, 14, 33, 39, 63, 69; breeding range, 23.
 Henslow, 14, 39.
 house, 11.
 Ipswich, 16.
 Sparrow, lark, 18.
 Leconte, 18.
 Lincoln, 14, 39, 47, 62, 64, 65, 70.
 Nelson, 16.
 Savanna, 13, 39, 46, 62, 64.
 seaside, 14, 39.
 sharp-tailed, 14, 39.
 song, 12, 39, 46, 60, 62, 64, 68, 72.
 swamp, 12, 39, 46, 57, 62, 64.
 tree, 16.
 vesper, 13, 39, 46, 51, 62, 64, 68.
 white-crowned, 16, 62, 64.
 white-throated, 12, 35, 39, 46, 47, 62, 64; breeding range, 22.
 Sparrow hawk, 63.
 Spatula clypeata, **196-97**.
 spectabilis, Anas, 220.
 Fuligula, 220.
 Somateria, **220-21**.
 Spelman, Henry M., cited, 313.
 sponsa, Aix, **199-201**.
 Anas, 199.
 Spoon-bill, 197.
 Spring arrivals, 72-74.
 Squatarola helvetica, 345.
 squatarola, **345-46**.
 squatarola, Charadrius, 345.
 Tringa, 345.
 Squirrel, red, an enemy of birds, 54.
 Stake-driver, 250.
 Starling, 12.
 Steganopodes, 89, 90, **165**.
 Steganopus tricolor, **292-93**.
 stellata, Gavia, **103-4**.
 stellatus, Colymbus, 103.
 Stercorariidae, **113**.
 Stercorarius longicaudus, **117-19**; figure, 118.
 parasiticus, **116-17**; figure, 118.
 pomarinus, **114-16**.
 Sterling, cited, 221.
 Sterna acufflava, 140.

- Sterna anglica*, 137.
antillarum, 148.
arctica, 146.
argentea, 148.
cantiaca, 140.
caspia, 138-39.
cayana, 138, 140.
dougalli, 147.
forsteri, 142-43; figure, 141.
fuscata, 149.
hirundo, 143-45.
maxima, 139-40.
minuta, 148.
nigra, 149, 152.
nilotica, 137.
paradisaea, 146.
philadelphia, 134.
sandvicensis acufilavida, 140-41; figure, 140.
superciliaris, 148.
surinamensis, 149.
trudeaui, 141-42; figure, 141.
tschegrava, 138.
Stilt, 295.
 black-necked, 18, 295-96; figure, 296.
Stint, 318.
Stone, cited, 126.
Stork, 244.
 American wood, 245.
strepera, *Anas*, 187.
streperus, *Chaulelasmus*, 187-89.
Strepsilas interpres, 357.
stricklandi, *Puffinus*, 158.
Striges, 90.
Strigiformes, 89, 90.
subarquata, *Tringa*, 316.
subruficollis, *Tringa*, 334.
Tryngites, 334-35.
Sula americana, 169.
 bassana, 169.
 leucogaster, 168-69; figure, 168.
 sula, 168.
Sulidae, 167-68.
 Summary of the New York State avifauna, 11-18.
 Summer residents, 13-15.
 Summer visitants, 17.
superciliaris, *Sterna*, 148.
surinamensis, *Sterna*, 149.
Swallow, 51, 53, 55, 56, 57, 68, 70.
 bank, 13, 40, 47, 62, 64.
 barn, 13, 40, 47, 60, 62, 64, 68, 72; spring migration, 66.
 cliff, 13, 40, 47, 63, 64.
 rough-winged, 11, 14, 33, 40, 47, 62, 64; breeding range, 24.
 tree, 13, 40, 47, 62, 64.
 white-bellied, 63.
Swans, 174, 177.
 American, 236.
 trumpeter, 18, 236, 237, 239-40.
 whistling, 15, 236-39.
Swift, 53.
Swimmer, long-winged, 112.
 tube-nosed, 153.
Symphemia semipalmata, 328.
Tanager, 51.
 Louisiana, 18.
 scarlet, 13, 39, 47, 62, 64.
 summer, 17, 32.
Tantalus loculator, 244.
Tapeworms, 55.
Tattler, semipalmated, 329.
 varied, 324.
Taylor, H. H., cited, 313.
Teal, blue-winged, 14, 36, 193, 194-95, 196.
 cinnamon, 18, 195-96; figure, 196.
 diving, 226.
 European, 18, 191; figure, 192.
 green-winged, 15, 184, 192-93.
 spoon-bill, 197.
 summer, 194.

- Teaser, 113, 116.
 Teeter-tail, 336.
 Tern, 119-20; first primaries, figure, 144;
 outer tail feathers, figure, 144.
 Anglican, 138.
 Arctic, 15, 144, 145, 146.
 black, 14, 36, 119, 148, 149-52; figure,
 151.
 Cabot, 17, 140-41; figure, 140.
 Caspian, 15, 119, 138-39, 140.
 Cayenne, 140.
 common, 14, 36, 142, 143-45, 146, 147.
 Forster, 15, 142-43, 144, 145; figure,
 141.
 gull-billed, 17, 137-38.
 least, 14, 36, 148.
 McDougall, 147.
 marsh, 138.
 Nuttall, 138.
 roseate, 14, 36, 145, 147.
 royal, 17, 139-40.
 Sandwich, 140.
 short-tailed, 150, 151.
 sooty, 17, 149.
 Trudeau, 17, 141-42; figure, 141.
 white-headed, 142.
 Wilson, 144.
 Tetrao canadensis, 365.
 cupido, 376.
 lagopus, 375.
 togatus, 373.
 umbellus, 366.
 urogallus, 377.
 virginianus, 361.
 Tetraonidae, 364.
 tetrix, Lyrurus, 377.
 Thalassidroma leachi, 163.
 pelagica, 162; figure, 162.
 wilsoni, 164.
 Thrasher, 34, 65.
 brown, 14, 41, 48, 63, 64, 72.
 Threadworm, 56.
 Thrush, 42, 49, 50, 53, 70, 71.
 Bicknell, 15, 41, 49, 50.
 gray-cheeked, 11, 16.
 hermit, 12, 35, 42, 49, 63, 64, 70, 73;
 breeding range, 30.
 olive-backed, 15, 35, 41, 42, 49, 63, 64.
 varied, 18.
 Wilson 14, 35, 41, 49, 57, 63, 64.
 wood, 14, 34, 41, 49, 63, 64.
 Thunder-pumper, 250.
 Ticks, 55.
 tigrina, Dendroica, 59-60.
 Tinker, 106, 110.
 Tip-up, 336.
 Tit, tufted, 32; breeding range, 30.
 Titmouse, Carolina, 76.
 tufted, 12, 33, 41.
 Todd, cited, 139, 281, 307, 311, 313, 329,
 385.
 togatus, Tetrao, 373.
 torda, Alca, 110-11.
 torquatus, Phasianus, 378.
 Totanus bartramius, 331.
 chloropygius, 326.
 flavipes, 325-26.
 macularia, 335.
 melanoleucus, 323-24.
 semipalmatus, 328.
 Totipalmate birds, 165-66.
 Towhee, 13, 39, 62.
 Transients, 15-16.
 Transition zone, 19.
 tricolor, Phalaropus, 292.
 Steganopus, 292-93.
 tricolor ruficollis, Ardea, 258.
 Hydranassa, 258-59.
 tridactyla, Rissa, 121-22.
 tridactylus, Larus, 121.
 Tringa alpina, 314.
 pacificus, 315.
 arenaria, 319.
 autumnalis, 242.

- Tringa bairdii*, 312.
canutus, 307-8.
cinclus, 315.
ferruginea, 316.
fulicaria, 289.
fuscicollis, 311.
himantopus, 306.
interpres, 357.
lobata, 291.
longicauda, 331.
macularia, 335.
maculata, 309.
maritima, 308.
minutilla, 313, 317.
pectoralis, 309.
pugnax, 330.
pusilla, 313, 317.
rufescens, 334.
schinzi, 311.
solitarius, 326.
squatarola, 345.
subarquata, 316.
subruficollis, 334.
vanellus, 344.
Tringae, 296.
troile, *Uria*, 107.
Tropical bird, 166.
 yellow-billed, 17, 166-67; figure, 167.
Tropical region, 19.
trudeaui, *Sterna*, 141-42.
Tryngites subruficollis, 334-35.
tschegrava, *Sterna*, 138.
Tubinares, 89, 90, 153.
Turkey, 379.
 wild, 12, 50, 299, 379-80.
Turnicidae, 289.
Turnstone, 16, 357.
 ruddy, 357-58.
Turtle, snapping, 55.
Tweezer, 178.
Tympanuchus cupido, 376-77; figure, 376.
umbellus, *Tetrao*, 366.
 togata, *Bonasa*, 367, 373-74.
 umbellus, *Bonasa*, 366-73.
Upper Austral zone, 19.
Uria grylle, 106.
 lomvia, 107-8.
 troile, 107.
Urinator arcticus, 102.
 imber, 99.
 lumme, 103.
urogallus, *Tetrao*, 377.
vallisneria, *Anas*, 203.
 Aythya, 203.
 Fuligula, 203.
 Marila, 203-5.
Vanellus vanellus, 344-45; figure, 344.
vanellus, *Tringa*, 344.
Vaughan, cited, 313.
violacea, *Ardea*, 266.
 Nyctanassa, 266-67.
violaceus, *Nycticorax*, 266.
Vireo, 52, 54, 68, 70.
 blue-headed, 14, 40, 47, 62, 64; breeding range, 24.
 Philadelphia, 16, 63, 65.
 plumbeous, 18.
 red-eyed, 14, 40, 42, 47, 63, 64.
 solitary, 35.
 warbling, 14, 40, 47, 62, 64.
 white-eyed, 14, 33, 40; breeding range, 24.
 yellow-throated, 14, 40, 47, 62, 64.
virescens, *Ardea*, 262.
 Butorides, 262-64.
virginiana, *Ortyx*, 361.
virginianus, *Charadrius*, 346.
 Colinus, 361-64.
 Rallus, 274-76.
 Tetrao, 361.
vocifera, *Aegialitis*, 348.
vociferus, *Charadrius*, 348.

- vociferus, *Oxyechus*, 348-52.
 Vulture, American, 90.
 black, 17.
 turkey, 17.
- Wallace, cited, 216.
- Warbler, 42, 48, 50, 52, 54, 65, 68, 70, 71.
 bay-breasted, 16, 48, 64.
 black, 48.
 black and white, 14, 40, 62, 64.
 Blackburnian, 15, 35, 40, 42, 48, 63, 64;
 breeding range, 26.
 blackpoll, 15, 40, 47, 48, 52, 64, 68.
 black-throated blue, 15, 40, 42, 48, 62,
 64; breeding range, 25.
 black-throated green, 14, 40, 42, 48, 62,
 64.
 blue-winged, 14, 33, 40; breeding
 range, 25.
 Brewster, 14, 40.
 Canada, 15, 41, 48, 63, 64; breeding
 range, 28.
 Cape May, 16, 48, 59-60, 64, 65.
 cerulean, 14, 40, 69; breeding range,
 26.
 chestnut-sided, 14, 40, 48, 63, 64.
 Connecticut, 11, 16, 65.
 golden-winged, 14, 33, 40; breeding
 range, 25.
 hemlock, 76.
 hooded, 14, 33, 41, 64; breeding range,
 28.
 Kentucky, 14, 33, 41, 69; breeding
 range, 28.
 Kirtland, 65.
 Lawrence, 14, 40.
 magnolia, 15, 40, 48, 63, 64; breeding
 range, 26.
 mourning, 15, 41, 48, 64, 68; breeding
 range, 28.
 myrtle, 12, 40, 42, 47, 48, 62, 64; breed-
 ing range, 27.
- Warbler, Nashville, 14, 40, 62, 64.
 northern parula, 14, 40.
 orange-crowned, 16.
 palm, 16, 73.
 parula, 48, 62, 64.
 pine, 14, 40.
 prairie, 14, 33, 40; breeding range, 26.
 prothonotary, 17.
 southern parula, 14.
 Tennessee, 15, 40, 48, 63.
 whistling, 76.
 white, 48.
 Wilson, 16, 48, 63.
 worm-eating, 14, 40; breeding range,
 25.
 yellow, 14, 40, 48, 62, 64, 72.
 yellow palm, 16, 73.
 yellow-rumped, 35.
 yellow-throated, 17.
- Wassenaers, cited, 381.
- Water birds, 43.
- Water hen, 288.
- Waterfowl, 56, 176; decrease of species,
 50.
- Water-thrush, 41, 48, 63, 64; breeding
 range, 27.
 Grinnell, 18.
 large-billed, 31.
 Louisiana, 11, 14, 33, 41, 63, 65, 69;
 breeding range, 27.
 northern, 15, 70.
- Water-witch, 95, 96.
- Waxwing, Bohemian, 16.
 cedar, 11, 40, 47, 62, 64.
- Weasel, 55.
- Webster, F. S., cited, 245.
- Wekas, 270.
- West, S. H., cited, 174.
- Western species, 18.
- Wheatear, 18.
- Wheaton, cited, 103, 309, 335.
- Wheezzer, 178.

- Whimbrel, American, 339.
 Whip-poor-will, 13, 38, 44, 62, 70.
 Whistle-wing, 209.
 Whistler, 209.
 White-throat, 46, 65.
 Whitfield, cited, 382.
 Widgeon, 18, 199.
 American, 190-91.
 European, 189.
 Widgeon-coot, 226.
 Willet, 15, 328-30.
 western, 330.
 wilsoni, *Holopodius*, 292.
 Scolopax, 300.
 Thalassidroma, 164.
 wilsonia, *Aegialitis*, 356.
 Charadrius, 356.
 wilsonius, *Ochthodromus*, 356-57.
 Winter visitants, 16-17.
 Woodcock, 43, 52, 70, 289, 327, 333.
 American, 13, 36, 296, 297-300; nest
 and eggs, figure, 299.
 European, 76, 296.
 Woodpecker, 44, 51, 55, 90.
 American three-toed, 13, 38, 44.
 Arctic three-toed, 13, 38.
 banded-backed, 71.
 black-backed, 71.
 black-backed three-toed, 44.
 Canadian, 76.
 downy, 11, 38, 44, 51, 62, 63, 64.
 hairy, 11, 38, 44, 51, 63.
 northern hairy, 76.
 northern pileated, 13, 38.
 pileated, 44, 51.
 Woodpecker, red-bellied, 12, 38.
 red-cockaded, 76.
 red-headed, 11, 38, 44, 51, 62, 64.
 three-toed, 35.
 yellow-bellied, 64.
 Woodruff, cited, 313.
 Worthington, cited, 108, 137, 215.
 Wren, 51, 52, 54, 70.
 Carolina, 12, 31-32, 33, 41, 69; breed-
 ing range, 29.
 house, 14, 41, 48, 63, 64, 76.
 long-billed marsh, 14, 41, 64.
 marsh, 51, 55, 57, 65.
 short-billed marsh, 14, 41; breeding
 range, 29.
 winter, 12, 41, 42, 48, 49, 63; breeding
 range, 29.
 wood, 76.
 Wright, Frank S., cited, 77, 189, 238,
 243.
Xema sabini, 136-37.
 Yellow-legs, 15, 305, 313.
 greater, 15, 323-24.
 lesser, 324, 325-26.
 winter, 324.
 Yellowthroat, northern, 14, 41, 48, 63, 64.
 Young, cited, 315.
Zenaidura macroura, 386.
 carolinensis, 386-88; figure, 387;
 nest and eggs, figure, 388.
zonorhynchus, *Larus*, 130.

